

FINAL

**ENVIRONMENTAL ASSESSMENT
FOR THE INSTALLATION OF PERMANENT LIGHTING
AND A BORDER INFRASTRUCTURE SYSTEM
OFFICE OF BORDER PATROL
YUMA SECTOR, ARIZONA**



**Department of Homeland Security
U.S. Customs & Border Protection
Washington, D.C.**

DECEMBER 2004

FINDING OF NO SIGNIFICANT IMPACT
For the Installation of Permanent Lighting and a Border Infrastructure System
Office of Border Patrol, Yuma Sector, Arizona

PROJECT HISTORY: The priority goal of the OBP is to strengthen the U.S. borders to prevent the entry of illegal entrants (IE), terrorist weapons, narcotics and other contraband. The abbreviation IE refers to any individual that attempts to enter the U.S. between Ports-of-Entry (POE). The principle objective of the OBP is to apply appropriate levels of personnel, intelligence, technology, and infrastructure resources to increase the level of operational effectiveness until the likelihood of apprehension is sufficient to be an effective deterrent in creating acceptable border-wide control. The intent is to produce a level of deterrence that conveys an absolute certainty of detection, apprehension, and when appropriate, prosecution.

During recent years, the OBP has significantly increased its emphasis on deterrence. Deterrence is achieved only when the OBP has the ability to create and convey the immediate, credible, and absolute certainty of detection and apprehension. As such, tactical infrastructure components, such as lighting and fences, are a critical element in the current enforcement strategy. Developing trends such as the continued urbanization and industrialization of the immediate border, the recognition of environmental preservation concerns, and the increase of criminal trans-boundary activities (including trafficking in people, drugs, and terrorism efforts) continue to pose a border enforcement challenge and compound the need for tactical infrastructure along the international border.

The Yuma Station is responsible for controlling a total of approximately 54-miles of international border, including approximately 28-miles along Sonora Mexico and approximately 17-miles along the Colorado River that forms the border between California and Arizona as well as the international border between Arizona and Mexico. Much of the Yuma Station's area of operation (AO) is undeveloped desert and agricultural fields. Urban areas within the Yuma Station's AO includes Yuma, Somerton, San Luis, and Gadsden, Arizona. San Luis is a legal POE between the U.S. and Mexico, where both sides of the border area are developed. Developed areas provide concealment opportunities for IEs, and thus are popular crossing areas for IEs.

Because of the development on both sides of the international border, the San Luis and Colorado River areas are a popular crossing point for IEs. The San Luis and Colorado River areas are the highest traffic areas in the Yuma Station's AO. If IEs can breach the existing primary border fence or cross the agricultural fields adjacent to the Colorado River undetected and reach the developed areas of San Luis, they can mix into the general population of the area. Once IEs have mixed into the general population, it is difficult for OBP agents to discern between the IEs and legal citizens. In addition, OBP agents frequently are attacked by IEs throwing rocks, and OBP agents have had to use gunfire in isolated cases to escape the attacks in the area between San Luis and the Colorado River. Installation of border infrastructure would minimize this dangerous situation for the OBP agents and IEs as well. Further, due to the poor lighting conditions in the project area it is often difficult to discern if an IE is carrying a firearm or a non-lethal object, creating a safety concern for both the OBP agents and IEs.

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A border infrastructure system would empower the OBP to fully engage a proactive enforcement approach. The completion of a border infrastructure system would create an opportunity for OBP agents to gain an advantage over IEs who exploit the U.S.-Mexico border. A secure infrastructure system would establish a safe and solid foundation for the continued development of neighborhoods, businesses, parks, and environmental preserves. This strategy emphasizes flexibility that is formulated upon a state of deterrence achieved through a well-communicated certainty of detection and apprehension and is the bedrock for the future of illegal immigration control.

PURPOSE AND NEED: The purpose of the Proposed Action is to facilitate the OBP mission to prevent the entry of terrorists and their weapons, establish a level of deterrence through the certainty of detection and apprehension, and enhance the safety, effectiveness, and efficient environment in which to accomplish the OBP mission. The need for the Preferred Action is to control illegal traffic, improve safety conditions for OBP agents, and eliminate or reduce the environmental damage resulting from illegal traffic.

ALTERNATIVES: Four Alternatives, the Preferred Action, Lights Only Alternative, Lights and Roads Without Fences Alternative, and the No Action Alternative, were analyzed in the EA.

Preferred Action: The preferred action would create a 150-foot enforcement zone north of the U.S.-Mexico border, except where the project alignment deviates to the north to avoid existing canals. The entire 150-foot enforcement zone would be cleared of vegetation and graded prior to infrastructure installation to eliminate concealment opportunities and improve the line of sight of the OBP agents prior to infrastructure installation. Currently 60-feet of the proposed 150-foot enforcement zone is intensively used for enforcement actions by the OBP. This area is highly disturbed from OBP enforcement activities and the construction of canals and levees. The border infrastructure system would include the installation of permanent stadium style lights, a secondary fence, all-weather patrol road, maintenance road, security fence, and extension of the primary border fence. The Preferred Action is divided into three phases that encompass approximately 13 miles. Phases I and II would include the installation of stadium style lights, all-weather patrol road, secondary fence, maintenance road, and security fence near San Luis, Arizona. Phase I would also include the construction of approximately 1 mile of permanent stadium style lights north of the San Luis wastewater treatment plant. Phase II would also include extending the primary border fence approximately 3.5-miles east from its current terminus to Avenue C. Phase III would include the installation of stadium style lights only near the town of Gadsden, Arizona. Each phase would be constructed independently of each other as funding and resources become available.

Lights Only Alternative: Under this alternative, the stadium style lights and maintenance road would be the only part of the infrastructure system implemented. The maintenance road (20 feet wide) would be constructed along the illuminated corridor to allow vehicle access for installation and maintenance of the stadium style lighting structures. Ultimately the OBP determined this alternative would partially meet the purpose and need of the project.

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Lights and Roads Without Fences Alternative: Under this alternative, the stadium style lights, a drag road, and an all-weather patrol road would be constructed but the secondary fence, maintenance road, cleared enforcement zone, and security fence would not be installed. In addition, a drag road (8 feet wide) would be constructed as part of this alternative. The drag road would be located immediately adjacent to the north of the lights and the all-weather patrol road would be located immediately north of the drag road. The primary border fence in Phase II would not be extended. This alternative partially meets the purpose and need of the project.

No Action Alternative: The No Action Alternative would not allow the construction of permanent stadium style lights or the border infrastructure system. The OBP would continue its current enforcement strategies within the constraints of the current infrastructure. Without the installation of a border infrastructure system illegal traffic would continue and likely increase.

This alternative would result in continued ground disturbance from the increasing levels of illegal traffic and consequent OBP off-road vehicle effects during pursuit. The No Action Alternative would not facilitate the OBP's mission to prevent the entry of IEs and terrorist weapons, would not enhance the safety of OBP agents, would not enhance the effectiveness of apprehension activities through the deployment of resources and agents, and would not protect sensitive resources from illegal traffic.

ENVIRONMENTAL CONSEQUENCES: The footprint of the Preferred Action is approximately 163-acres. Of this, 76-acres are undisturbed and 87-acres are disturbed or developed. The 87-acres is used for border enforcement activities and Bureau of Reclamation (BOR) irrigation canals and levees and contains little or no vegetation or supports any real vegetation communities. The 76-acres would be permanently affected by the removal of vegetation and construction of the enforcement zone.

The Preferred Action would permanently alter the land use on approximately 76-acres within the project area. The potential impacts would be associated with obtaining an additional 90-foot corridor north of the existing 60-foot corridor used for law enforcement activities. The land uses potentially affected within the project area are not locally or regionally unique. Therefore, the Preferred Action is not expected to have an adverse impact on land use locally or regionally.

Approximately 163-acres of soils in the project area would be impacted as a result of constructing the border infrastructure system; however approximately 87-acres have previously been disturbed and are currently being impacted as stated above. The disturbance of 76-acres of undisturbed soils would make this area susceptible to the establishment of non-native invasive species. However, the proposed border infrastructure system would have an indirect beneficial impact as a result of reducing illegal traffic, which currently causes soil disturbances and serves as a seed source for non-native invasive species.

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Approximately 76 acres of vegetated area and wildlife habitat dominated by bursage and creosote bush would permanently be removed to construct the border infrastructure system. Due to the abundance of this habitat type both locally and regionally and the location of the project area to urban areas, no significant adverse effects to vegetation or wildlife are anticipated. Indirect beneficial effects on vegetation, wildlife, and endangered species are anticipated as a result of reducing illegal traffic.

No Federally threatened or endangered species would be adversely impacted as a result of the Preferred Action. There is the potential for an individual flat-tailed horned lizard (FTHL) to be taken during construction activities. The preferred action would potentially impact approximately nine acres within the Yuma Desert Management Area (YDMA) for the FTHL. Environmental design measures included as part of the project would minimize potential impacts and mitigate for the loss of nine acres within the YDMA. Therefore, the unique characteristics of the YDMA would not be lost as a result of implementing the Preferred Action. Indirect beneficial impacts are anticipated as a result of reducing illegal traffic north of the project area in the YDMA.

No adverse impacts to cultural resources are anticipated. Several sites eligible for placement on the National Register of Historic Places are located within or near the project area; however, these sites are currently in use and would not be affected by the Preferred Action. In addition, the sites are surrounded by modern developments. The Preferred Action would have a beneficial indirect impact as a result of reducing illegal traffic, thus reducing the potential negative effects to cultural resources.

Water quality, air quality, socioeconomic resources, threatened and endangered species and aesthetics would not be adversely affected by the implementation of the Preferred Action. Hydrocarbon and fugitive dust emissions would increase temporarily during construction activities. However, following construction hydrocarbon and fugitive dust emissions would be decreased from current levels. Temporary increases in noise levels would be expected during construction activities; however, noise levels would be expected to decrease to pre-project or lower levels after implementation.

No significant adverse effects to the natural or human environment, as defined in Section 1508.27 of the Council on Environmental Quality's Regulations for Implementing the National Environmental Policy Act, are expected upon implementation of the Preferred Action.

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ENVIRONMENTAL DESIGN MEASURES: Environmental design measures to be implemented by the OBP for the Preferred Action include:

General Construction Activities: Best management practices would be implemented as standard operating procedures during all construction activities such as proper handling, storage, and/or disposal of hazardous and/or regulated materials. To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils, and solvents would be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein. The refueling of machinery would be completed following accepted guidelines, and all vehicles would have drip pans during storage to contain minor spills and drips. Although it would be unlikely for a major spill to occur, any spill of 5 gallons or more would be contained immediately within an earthen dike, and the application of an absorbent (*e.g.*, granular, pillow, sock, *etc.*) would be used to absorb and contain the spill. Any major spill of 5 gallons or more of a hazardous or regulated substance would be reported immediately to on-site environmental personnel who would notify appropriate Federal and state agencies. A Spill Prevention, Containment, and Countermeasures Plan (SPCCP) would be in place prior to the start of construction and all personnel would be briefed on the implementation and responsibilities of this plan.

All waste oil and solvents would be recycled. All non-recyclable hazardous and regulated wastes would be collected, characterized, labeled, stored, transported, and disposed of in accordance with all Federal, state, and local regulations, including proper waste manifesting procedures.

Solid waste receptacles would be maintained at staging and bivouac areas. Non-hazardous solid waste (trash and waste construction materials) would be collected and deposited in on-site receptacles. Solid waste would be collected and disposed of by a local waste disposal contractor.

Soils: Vehicular traffic associated with the construction activities and operational support activities would remain on established roads to the maximum extent practicable. Areas with highly erodible soils would be given special consideration when designing the proposed projects to ensure incorporation of various erosion control techniques such as, straw bales, aggregate materials, wetting compounds, and revegetation with native plant species, where possible, to decrease erosion. In addition, erosion control measures, as required and promulgated through the Storm Water Pollution Prevention Plan (SWPPP), would be implemented before and after construction activities.

Vegetation: Construction equipment would be cleaned prior to entering and departing the project area to minimize the spread and establishment of non-native invasive plant species. Soil disturbances in temporary impact areas would be re-vegetated with native plant species where appropriate.

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Wildlife: The Migratory Bird Treaty Act (MBTA) requires that Federal agencies coordinate with the USFWS if construction activity would result in the take of a migratory bird. Surveys of suitable habitat would be performed to identify active nests. If construction activities would result in the take of a migratory bird, then consultation with the USFWS and AGFD would be conducted prior to construction or clearing activities. Another mitigation measure that would be considered is to schedule all construction activities outside nesting season (March 1 through September 1). Bird surveys would not be required if clearing activities occur outside of the nesting season.

Protected Species: If construction occurs in Phase III during the breeding season (April 1 – September 1) of the southwestern willow flycatcher, pre-construction surveys for the presence of nesting southwestern willow flycatchers within the Colorado River riparian area would be instituted. Pre-construction surveys for breeding Yuma clapper rail would not be required because the riparian area is not considered suitable breeding habitat.

Stadium style lights in Phase III would be oriented so the angle of illumination is downward into the agricultural fields and shielded to not illuminate the riparian area along the Colorado River.

Surveys for the FTHL will be conducted prior to the initiation of construction in Phase II. Lizard exclusion fencing would be erected around the 150- foot project corridor within the YDMA prior to surveys. A biologist authorized to handle FTHL will conduct the surveys. If FTHLs are observed within the project area they will be removed prior to the initiation of construction. Impacts to the YDMA would be mitigated in coordination with Bureau of Land Management and BOR. The OBP will provide appropriate compensation for the nine acres of impacts to the YDMA. The Flat-Tailed Horned Lizard Interagency Coordinating Committee (FTHLICC) will determine compensation.

On site mitigation for the western burrowing owl will consist of passive relocation. This entails encouraging owls to move from occupied burrows within the project area to alternative locations in suitable habitat beyond 50 meters from the project disturbance. The use of one-way doors on burrows is typically successful at keeping owls from returning to the burrows within the project area. Relocation should only be attempted during the non-breeding season (California Burrowing Owl Consortium 1993).

Cultural Resources: All construction will be kept within previously surveyed areas. If any cultural material is discovered during the construction efforts then all activities would halt until a qualified archeologist can be brought in to assess the cultural remains.

Known cultural resources sites will be avoided wherever they may intersect the project area, except for existing levee roadways. If it is not possible to avoid the sites during construction, an architectural historian and a historical archeologist will re-evaluate the eligibility of the sites and assess potential impacts.

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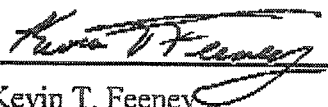
Water Resources: Standard construction procedures would be implemented to minimize the potential for erosion and sedimentation during construction. All work would cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and material. Effective March 10, 2003, in accordance with regulations of the U.S. Environmental Protection Agency Phase II of the National Pollutant Discharge Elimination System (NPDES) stormwater program, a SWPPP would be required, for stormwater runoff from construction activities greater than 1 acre and less than 5 acres. Therefore, a SWPPP would be prepared and implemented prior to the start of any border security infrastructure.

Air Quality: Mitigation measures will be incorporated to insure that SO₂ and PM₁₀ emission levels do not rise above the minimum threshold of 100 tons per year as required per 40 CFR 51.853(b)(1). Standard construction practices such as routine watering of the construction site and access routes will be used to control fugitive dust during the construction phases of the proposed project. Additionally, all construction equipment and vehicles will be required to be kept in good operating condition to minimize exhaust emissions.


Noise: During the construction phase, short-term noise impacts are anticipated. All Occupational Safety and Health Administration (OSHA) requirements will be followed. On-site activities will be restricted to daylight hours with exceptions of concrete pours and emergency situations. Construction equipment will possess properly working mufflers and will be kept properly tuned to reduce backfires. Implementation of these measures will reduce the expected short-term noise impacts to an insignificant level in and around the construction site.

Aesthetics: Stadium style light poles will be painted to blend in with the surrounding environment. Shields will be installed on the lights to prevent background lighting. Lights will also be installed such that the direction of illumination is downward.

FINDING: Based upon the results of the environmental assessment and the environmental design measures to be incorporated as part of the Proposed Action, it has been concluded that the Proposed Action will not have a significant effect on the environment. Therefore, no further environmental impact analysis is warranted.



Kevin T. Feeney
Environmental Program Manager
U.S. Customs and Border Protection



Date

FINDING OF NO SIGNIFICANT IMPACT

Installation of Permanent Lighting and a Border Infrastructure System Office of Border Patrol, Yuma Sector, Arizona Joint Task Force North

The primary purposes of the preferred action are to facilitate the Office of Border Patrol's (OBP) mission to prevent the entry of illegal traffic, drug traffic, terrorists and their weapons along the southwestern border, establish a level of deterrence through the certainty of detection and apprehension, and enhance the safety, effectiveness, and efficient environment in which to accomplish the OBP's mission. A secondary purpose of the preferred action is to provide training for Joint Task Force North (JTF-N) personnel. The needs are to enhance the OBP's ability to control illegal traffic near San Luis and Gadsden, Arizona, improve safety conditions for OBP agents, and eliminate or reduce the environmental damage associated with illegal traffic.

The Environmental Assessment (EA) addresses the potential effects, beneficial and adverse, of the proposed installation of permanent stadium style lights and a border infrastructure system near the United States (U.S.)-Mexico border in Yuma County, Arizona. The EA is tiered from the Supplemental Programmatic Environmental Impact Statement for Immigration Naturalization Service and JTF-6 Activities. Previous EAs prepared by the former Joint Task Force Six also addressed the potential impacts, both beneficial and adverse, of extending the primary border fence approximately 3.3 miles to the east, beginning at the terminus of the existing primary border fence, and the installation of stadium style lights along portions of the current three phases addressed in this document.

The preferred action would create a 150-foot enforcement zone north of the U.S.-Mexico border, except where the project alignment deviates to the north to avoid existing canals. The entire 150-foot enforcement zone would be cleared of vegetation and graded prior to infrastructure installation to eliminate concealment opportunities and improve the line of sight of the OBP agents prior to infrastructure installation. Currently 60 feet of the proposed 150-foot enforcement zone is intensively used for enforcement actions by the OBP. This area is highly disturbed from OBP enforcement activities and the construction of canals and levees. The border infrastructure system would include the installation of permanent stadium style lights, a secondary fence, all-weather patrol road, maintenance road, security fence, and extension of the primary border fence. The Preferred Action is divided into three phases that encompass approximately 13 miles. Phases I and II would include the installation of stadium style lights, all-weather patrol road, secondary fence, maintenance road, and security fence near San Luis, Arizona. Phase I would also include the construction of approximately 1 mile of permanent stadium style lights north of the San Luis wastewater treatment plant. Phase II would also include extending the primary border fence approximately 3.5 miles east from its current terminus to Avenue C. Phase III would include the installation of stadium style lights only near the town of Gadsden, Arizona. Each phase would be constructed independently of each other as funding and resources become available. Permanent stadium style lights would be the first infrastructure constructed beginning in Phase I. The additional elements of the border infrastructure system (*e.g.* all-weather road, secondary fence, *etc.*) would be constructed in Phase I as funding and resources become available. Phase II would be the next phase constructed after Phase I is completed. However, depending on resources the construction of permanent stadium style lights could begin in Phase II before Phase I is completed. The installation of permanent stadium style lights in Phase III would be the last element constructed.

Alternatives considered include the preferred action, described above, the no action alternative, the lights only alternative and lights and roads without fences alternative.

No significant adverse effects to the natural or human environment are expected with the implementation of the preferred action. The preferred action has been coordinated through the appropriate agencies. The footprint of the Preferred Action is 163 acres. Of this 76 acres are undisturbed and 87 acres are disturbed or developed. The 87 acres is used for border enforcement activities and Bureau of Reclamation (BOR) canals and contains little or no vegetation and support no real vegetation communities. The 76 acres would be permanently affected by the removal of vegetation and construction of the enforcement zone.

Approximately 163 acres of soils in the project area would be impacted as a result of constructing the border infrastructure system; however approximately 87 acres have previously been and are currently being impacted by illegal activities and OBP enforcement activities. The disturbance of 76 acres of undisturbed soils would make this area susceptible to the establishment of non-native invasive species. However, the proposed border infrastructure system would have an indirect beneficial impact as a result of reducing illegal traffic, which serves as a seed source for non-native invasive species.

Approximately 76 acres of vegetated area and wildlife habitat dominated by bursage and creosotebush would permanently be removed to construct the border infrastructure system. The bursage-creosotebush community is a low quality habitat for wildlife. Due to the abundance of this habitat type both locally and regionally and the location of the project area to urban areas, no significant adverse effects to vegetation or wildlife are anticipated. Indirect beneficial effects on vegetation, wildlife, and endangered species are anticipated as a result of reducing illegal traffic.

The preferred action would potentially impact approximately nine acres within the Yuma Desert Management Area (YDMA) for the flat-tailed horned lizard (FTHL). However, environmental design measure proposed as part of the project would minimize the potential impacts. Indirect beneficial impacts are anticipated as a result of reducing illegal traffic north of the project area in the YDMA.

No adverse impacts to cultural resources are anticipated. Several sites eligible for placement on the National Register of Historic Places are located within or near the project area; however, these sites are currently in use and would not be affected by the proposed actions. In addition, the sites are surrounded by modern developments. The Preferred Action would have a beneficial indirect impact as a result of reducing illegal traffic, thus reducing the potential effects to cultural resources.

Water quality, air quality, socioeconomic resources, and aesthetics would not be adversely affected by the implementation of the Preferred Action. Hydrocarbon and fugitive dust emissions would increase temporarily during construction activities. However, following construction, hydrocarbon and fugitive dust emissions would be decreased from current levels.

Temporary increases in noise levels would be expected during construction activities; however, noise levels would be expected to decrease to pre-project or lower levels following the completion of construction.

The following environmental design measures will be implemented as part of the preferred action to minimize potential adverse impacts. As part of the general construction activities, best management practices would be implemented as standard operating procedures during all construction activities such as proper handling, storage, and/or disposal of hazardous and/or regulated materials. To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils, and solvents would be collected and stored in tanks or drums within a secondary containment system that consist of an impervious floor and bermed sidewalls. The refueling of machinery would be completed following accepted guidelines, and all vehicles would have drip pans during storage to contain minor spills and drips. Although it would be unlikely for a major spill to occur, any spill of 5 gallons or more would be contained immediately within an earthen dike, and the application of an absorbent (e.g., granular, pillow, sock, etc.) would be used to absorb and contain the spill. Any major spill of 5 gallons or more of a hazardous or regulated substance would be reported immediately to the JTF-N Environmental Specialist and Yuma Sector Facilities Manager who would notify appropriate Federal and state agencies. A Spill Prevention, Containment, and Countermeasures Plan (SPCCP) would be in place prior to the start of construction and all personnel would be briefed on the implementation and responsibilities of this plan.

All waste oil and solvents would be recycled. All non-recyclable hazardous and regulated wastes would be collected, characterized, labeled, stored, transported, and disposed of in accordance with all Federal, state, and local regulations, including proper waste manifesting procedures.

Solid waste receptacles would be maintained at staging and bivouac areas. Non-hazardous solid waste (trash and waste construction materials) would be collected and deposited in on-site receptacles. Solid waste would be collected and disposed of by a local waste disposal contractor.

Vehicular traffic associated with the construction activities and operational support activities would remain on established roads to the maximum extent practicable. Areas with highly erodible soils would be given special consideration when designing the proposed projects to ensure incorporation of various erosion control techniques such as, straw bales, aggregate materials, wetting compounds, and revegetation with native plant species, where possible, to decrease erosion. Standard construction procedures would be implemented to minimize the potential for erosion and sedimentation during construction. All work would cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and material. In addition, erosion control measures, as required and promulgated through the Storm Water Pollution Prevention Plan (SWPPP), would be implemented before and after construction activities.

Construction equipment would be cleaned prior to entering and departing the project area to minimize the spread and establishment of non-native invasive plant species. Soil disturbances in temporary impact areas would be re-vegetated with native plant species where appropriate.

Surveys of suitable habitat would be performed to identify active migratory bird nests. If construction activities would result in the take of a migratory bird, then consultation with the U.S. Fish and Wildlife Service and Arizona Game and Fish Department would be conducted prior to construction or clearing activities. Another mitigation measure that would be considered is to schedule all construction activities outside nesting season (March 1 through September 1). During the biological survey the western burrowing owl was observed nesting in the project area. No other ground nesting birds were observed in the project area during the biological survey. Bird surveys would not be required if clearing activities occur outside of the nesting season.

If construction occurs in Phase III during the breeding season (April 1 – September 1) of the southwestern willow flycatcher, pre-construction surveys for the presence of nesting southwestern willow flycatchers within the Colorado River riparian area would be instituted. Pre-construction surveys for breeding Yuma clapper rail would not be required because the riparian area is not considered suitable breeding habitat.

All stadium style lights would be oriented so the angle of illumination is downward. Special attention would be provided to the stadium style lights in Phase III to insure illumination is restricted to the agricultural fields and shielded to not illuminate the riparian area along the Colorado River.

Surveys for the FTHL will be conducted prior to the initiation of construction in Phase II. Lizard exclusion fencing would be erected around the 150- foot project corridor within the YDMA prior to surveys. The surveys will be conducted by a biologist authorized to handle FTHL. If FTHLs are observed within the project area they will be removed prior to the initiation of construction. Impacts to the YDMA would be mitigated in coordination with Bureau of Land Management and BOR. The OBP will provide appropriate compensation for the nine acres of impacts to the YDMA. Compensation will be determined by the Flat-Tailed Horned Lizard Interagency Coordinating Committee (FTHLICC).

On site mitigation for the western burrowing owl will consist of passive relocation. This entails encouraging owls to move from occupied burrows within the project area to alternative locations in suitable habitat beyond 50 meters from the project disturbance. The use of one-way doors on burrows are typically successful at keeping owls from returning to the burrows within the project area. Relocation should only be attempted during the non-breeding season (California Burrowing Owl Consortium 1993).

All construction will be kept within previously surveyed areas. If any cultural material is discovered during the construction efforts then all activities would halt until a qualified archeologist can be brought in to assess the cultural remains.

Known cultural resources sites will be avoided wherever they may intersect the project area, except for existing levee roadways. If it is not possible to avoid the sites during construction, an architectural historian and a historical archeologist will re-evaluate the eligibility of the sites and assess potential impacts.

Dust suppression methods to minimize airborne particulate matter during construction activities will be implemented. Standard construction practices such as routine watering of the construction site and access routes will be used to control fugitive dust during the construction phases of the proposed project. Additionally, all construction equipment and vehicles will be required to be kept in good operating condition to minimize exhaust emissions.

During the construction phase, short-term noise impacts are anticipated. All Occupational Safety and Health Administration (OSHA) requirements will be followed. On-site activities will be restricted to daylight hours with exceptions of concrete pours and emergency situations (e.g. when extreme day time temperatures threaten the safety of field personnel). Construction equipment will possess properly working mufflers and will be kept properly tuned to reduce backfires. Implementation of these measures will reduce the expected short-term noise impacts to an insignificant level in and around the construction site.

Stadium style light poles will be painted to blend in with the surrounding environment. Shields will be installed on the lights to prevent background lighting. Lights will also be installed such that the direction of illumination is downward.

Based upon the results of the environmental assessment and the environmental design measures to be incorporated as part of the preferred action, it has been concluded that the preferred action will not have a significant adverse effect on the environment. Therefore, no further environmental impact analysis is warranted.

A handwritten signature in dark ink, reading "Milton C. Blankenship, JR.", written over a horizontal line.

Milton C. Blankenship, JR
Environmental Officer
JTF North

17 December 2004

Date

FINAL

ENVIRONMENTAL ASSESSMENT
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AND A BORDER INFRASTRUCTURE SYSTEM
OFFICE OF BORDER PATROL
YUMA SECTOR, ARIZONA

December 2004

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EXECUTIVE SUMMARY

PREFERRED ACTION: The Preferred Action involves the construction of a border infrastructure system, which includes the installation of permanent stadium style lights, a secondary fence, all-weather patrol road, maintenance road, security fence, and extension of the primary border fence. The border infrastructure system would create a 150-foot enforcement zone north of the U.S.-Mexico border except where the enforcement zone deviates to the north to avoid existing canals west of Friendship Park in San Luis, Arizona. The Preferred Action is divided into three phases that encompass approximately 13 miles. Phases I and II would include the installation of stadium style lights, all-weather patrol road, secondary fence, maintenance road, and security fence near San Luis, Arizona. Phase I would also include the construction of approximately 1 mile of permanent stadium style lights north of the San Luis wastewater treatment plant. Phase II would include extending the primary border fence approximately 3.5 miles east from its current terminus to Avenue C. Phase III would only include the installation of stadium style lights near the town of Gadsden, Arizona. Each phase would be constructed independently of each other as funding becomes available. Permanent stadium style lights would be the first element constructed in Phase I. Additional elements of the border infrastructure system (e.g., all-weather road, secondary fence, etc.) would be constructed as funding becomes available. Phase II would be constructed after the completion of Phase I, with permanent lights being the first infrastructure constructed. Depending on the availability of resources, construction could occur concurrently, in Phase I and II. The last element constructed would be permanent lighting in Phase III.

PURPOSE AND NEED FOR THE PREFERRED ACTION: The purpose of the Preferred Action is to deter illegal entrants (IEs) from attempting to cross the international border in the San Luis and Colorado River enforcement areas in the Office of Border Patrol (OBP) Yuma Station's Area of Operation (AO). These two enforcement areas are the highest used illegal crossing areas in the Yuma Station's AO. The need for the Preferred Action is to enhance the effectiveness of the apprehension activities through the flexible deployment of resources and OBP agents; protect sensitive resources, public and private lands, and U.S. residents from IEs, illegal activities, and terrorists; enhance the safety, effectiveness, and efficient environment in which to accomplish the OBP mission; and provide a level of deterrence through a certainty of detection and apprehension.

**ALTERNATIVES TO THE
PREFERRED ACTION:**

Alternatives addressed in the Environmental Assessment (EA) include the No Action Alternative, the Lights Only Alternative, the Lights and Road Without Fence Alternative, and the Preferred Action Alternative described above. The No Action Alternative would not enhance the OBP's ability to detect and apprehend IEs and thus, would not effectively deter IEs from attempting to illegally enter the U.S. The Lights Only and Lights and Road Without Fence alternatives would enhance the OBP's ability to detect IEs and enhance the safety of the OBP agents. However, these two alternatives would only partially enhance the effectiveness of OBP apprehension activities, thus providing a level of deterrence less than the Preferred Action. Of the alternatives considered, the Preferred Action would be the most cost-efficient and strategically effective approach to control illegal traffic and satisfy the stated purpose and need.

**ENVIRONMENTAL
IMPACTS OF THE
PREFERRED ACTION:**

The total footprint of the Preferred Action Alternative is approximately 163 acres. Of this approximately 76 acres are undisturbed and 87 acres are disturbed or developed. Previous disturbances have occurred as a result of levee and canal construction as well as illegal vehicle entries and subsequent OBP enforcement actions. The Preferred Action Alternative would alter the land use and remove vegetation on 76 acres. Soils would be disturbed on the total 163 acres; however, 87 acres of soils have been previously disturbed. Environmental design measures have been developed to minimize potential effects. Approximately nine acres of the Yuma Desert Management Area (YDMA) for the flat-tailed horned lizard (FTHL) would be adversely affected. Potential adverse effects would be mitigated in accordance with the FTHL Rangewide Management Strategy to reduce impacts to the YDMA. The Preferred Action Alternative would have an indirect beneficial impact on unique and sensitive areas, soils, air quality, vegetation, cultural resources, and protected species as a result of reduced illegal foot and vehicle traffic.

CONCLUSIONS:

Based upon the results of the EA and the environmental design measures to be incorporated as part of the Preferred Action Alternative, it has been concluded that the Preferred Action Alternative would not have a significant adverse effect on the environment.

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SECTION 1.0
INTRODUCTION AND PURPOSE AND NEED



1.0 INTRODUCTION AND PURPOSE AND NEED

This Environmental Assessment (EA) addresses the potential effects, beneficial and adverse, of the proposed installation of permanent stadium style lights and a border infrastructure system near the United States (U.S.)-Mexico border in Yuma County, Arizona (Figure 1-1). The border infrastructure system would create a 150-foot enforcement zone north of the U.S.-Mexico border, except along an approximately 1,516 feet corridor west of Friendship Park in San Luis, Arizona where the enforcement zone will extend to approximately 669 feet to avoid existing canals. The action is proposed by the Office of Border Patrol's (OBP) Yuma Sector and would occur in the Yuma Station's area of operation (AO). The border infrastructure system would include the installation of permanent stadium style lights, a secondary fence, all-weather patrol road, maintenance road, security fence, and extension of the primary border fence. The Preferred Action is divided into three phases that encompass approximately 13 miles (Figure 1-2). Phases I and II would include the installation of stadium style lights, all-weather patrol road, secondary fence, maintenance road, and security fence near San Luis, Arizona. Phase I would also include the construction of approximately 1 mile of permanent stadium style lights north of the San Luis wastewater treatment plant. Phase II would also include extending the primary border fence approximately 3.5 miles east from its current terminus to Avenue C. Phase III would include the installation of stadium style lights only near the town of Gadsden, Arizona (see Figure 1-2). Each phase would be constructed independently of each other as funding and resources become available. The construction of stadium style lights in Phase I would be the first element constructed with a potential start date of January 2005. The additional elements of the border infrastructure system (e.g. all-weather road, secondary fence, etc.) would be constructed in Phase I as funding and resources become available. Phase II would be the next phase constructed after Phase I is completed. However, depending on resources the construction of permanent stadium style lights could begin in Phase II before Phase I is completed. It is anticipated that Phases I and II would be completed by the end of calendar year 2007.

Previous EAs prepared by Joint Task Force North (JTF-N), formerly Joint Task Force Six (JTF-6), addressed the potential impacts, both beneficial and adverse, of extending the primary border fence approximately 3.3 miles to the east beginning at the terminus of the existing primary border fence, and the installation of stadium style lights along portions of the current three phases

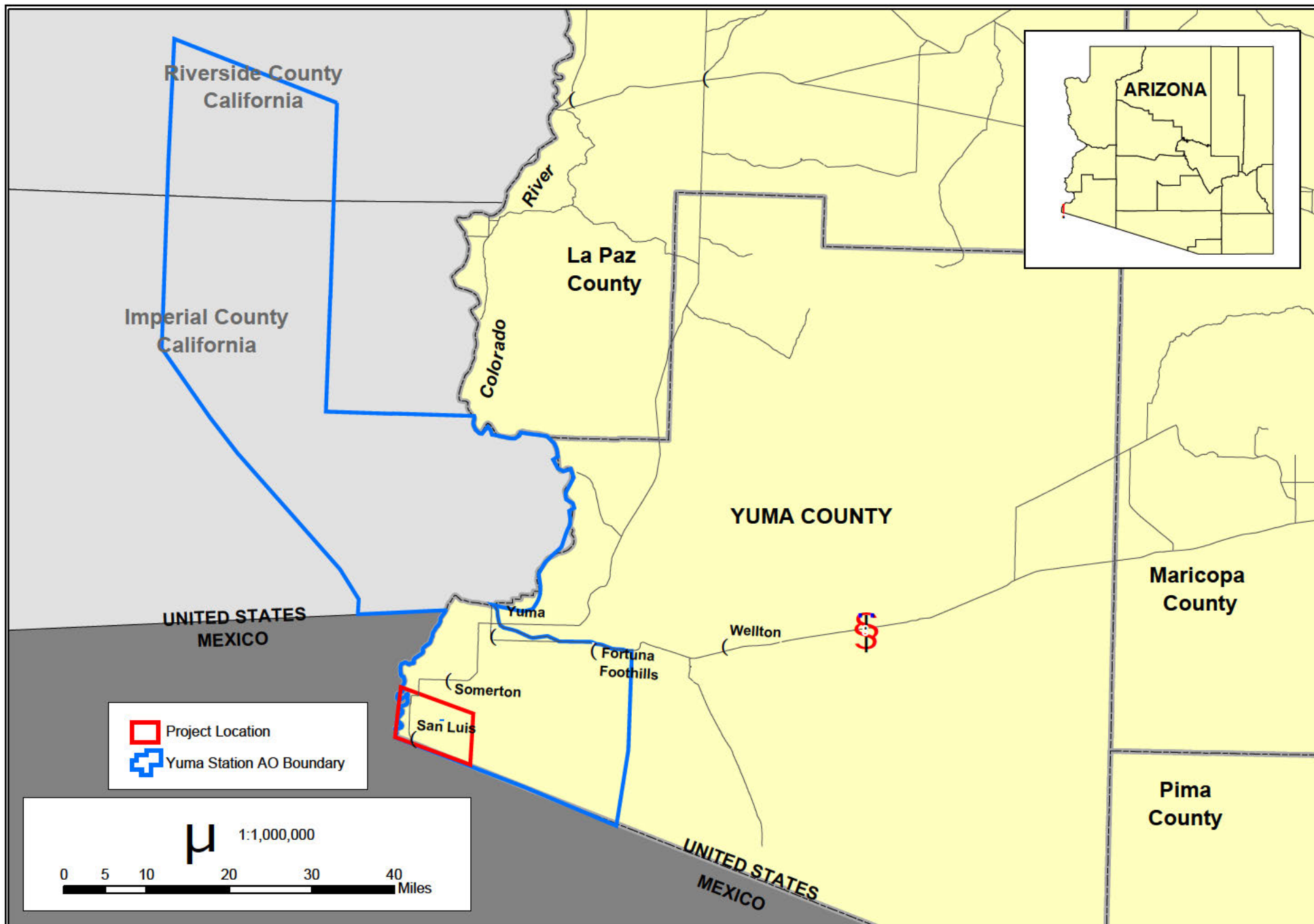


Figure 1-1: Vicinity Map

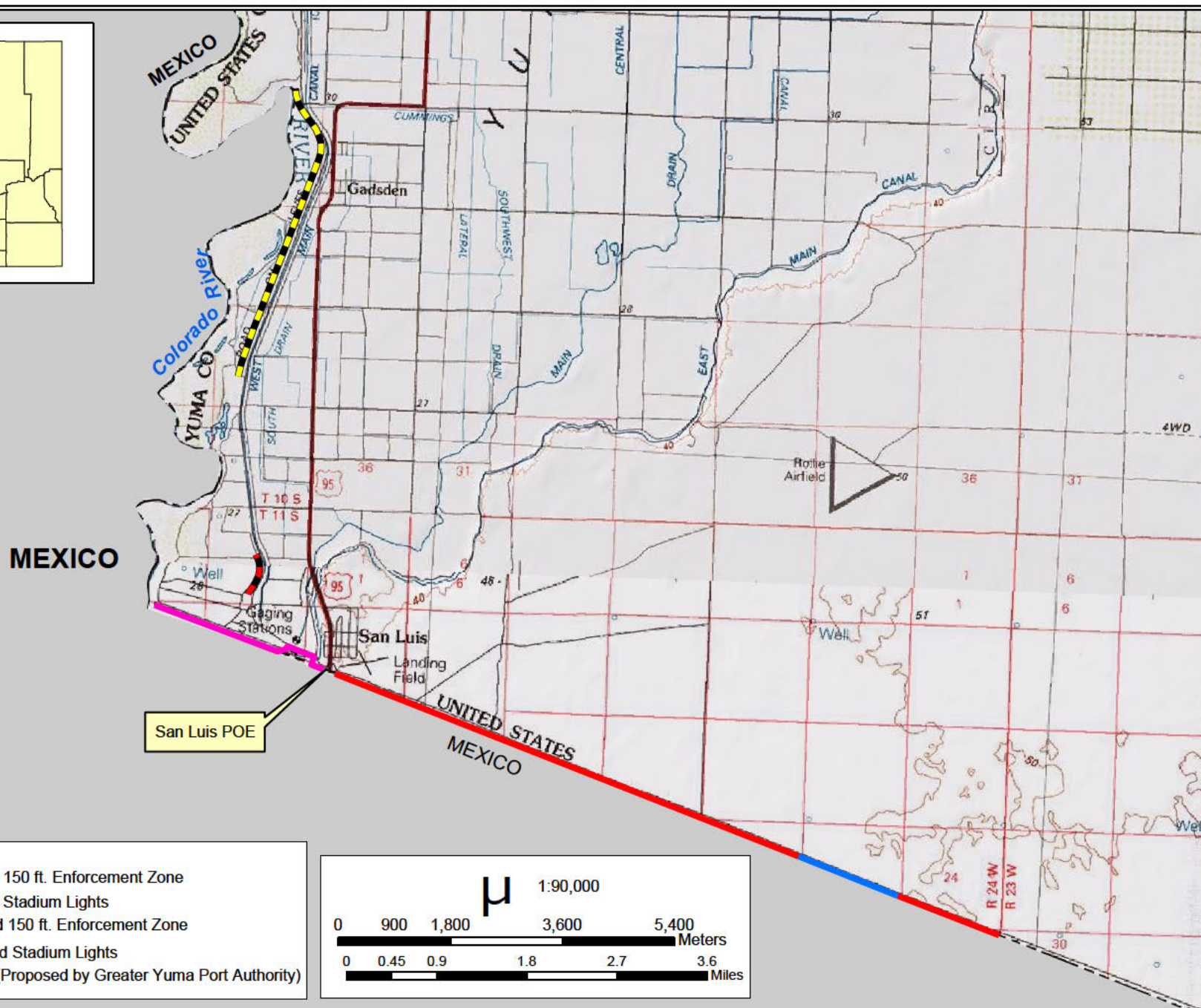


Figure 1-2: Project Location Map

addressed in this document (JTF-6 1998 and JTF-6 1999). JTF-N is a cooperating agency on this EA. This EA incorporates by reference and supplements these previous EAs. The EA is also tiered from the Supplemental Programmatic Environmental Impact Statement for Immigration Naturalization Service (INS) and JTF-6 Activities (USACE 2001).

This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations implementing NEPA (Title 40 of the U.S. Code of Federal Regulations [CFR], Parts 1500-1508), and 28 CFR Part 61, Appendix C, legacy INS Procedures Relating to the Implementation of the NEPA, which the OBP currently uses for NEPA compliance.

1.1 BACKGROUND

1.1.1 CBP History

In 1924, Congress created the Border Patrol to serve as the law enforcement entity of the INS, and it did so until November 25, 2002, when Congress transferred all INS responsibilities to the newly created Department of Homeland Security (DHS) with the passage of the Homeland Security Act of 2002 (Public Law 107-296). The Border Patrol was officially transferred into the OBP, under DHS, U.S. Customs and Border Protection (CBP), on March 1, 2003. The CBP also assumed many responsibilities and functions of other branches of the legacy INS as well as those of the U.S. Customs Service and the Animal and Plant Health Inspection Service.

1.1.2 JTF-N History

The National Strategy that directed the legacy INS to "...gain, maintain, and extend control..." of the border region also mandated the involvement of the Department of Defense (DoD) in these efforts. As a result, in 1989, the Secretary of Defense defined a significant role in the border protection effort for the Joint Task Force Six (JTF-6). The JTF-6 was formed as a military command that provides assistance and support to various enforcement agencies. This assistance is provided at sites located throughout the continental U.S. JTF-6 became Joint Task Force North (JTF-N) on 28 September 2004, as the task force expanded its role in homeland defense operations. JTF-N synchronizes and integrates Department of Defense (DoD) operational, engineering, technological, training and intelligence support in support of the OBP and other agencies. JTF-N will continue this effort, as directed by the National Defense Authorization Act (Public Law 101-510, as amended).

1.1.3 CBP Strategic Intent and Priorities

The priority mission of CBP is to prevent terrorists and terrorist weapons from entering the U.S. That important priority mission involves maintaining a diverse, multi-layered approach, which includes improving security at the international borders and ports of entry (POE), and extending the physical zone of security beyond the Nation's physical borders so that the U.S. borders are the last line of defense, not the first. As part of this mission, CBP will work to implement its *Comprehensive Strategy to Address the Threat of Nuclear and Radiological Terrorism* (CBP 2004), identify and seize terrorists' assets and funding sources, and enhance the support infrastructure to further develop targets and analyses.

In addition to carrying out its priority mission, the CBP must fulfill its traditional missions that include: controlling the sovereign borders of the U.S. by apprehending individuals attempting to enter the U.S. illegally; stemming the flow of illegal drugs and other contraband; protecting the Nation's agriculture and economic interest from harmful pest and diseases; facilitating international trade; collecting import duties; and enforcing U.S. trade, immigration and other laws of the U.S. at and beyond the Nation's borders. Hereinafter, any individual, including terrorists and smugglers, who attempt to illegally enter the U.S. between POEs is referred to as an illegal entrant (IE).

In the aftermath of the September 11, 2001 terrorist attacks on the U.S. and the subsequent formation of DHS, the OBP has assumed a new priority anti-terrorism mission into its operational environment. The priority mission is to prevent the entry of terrorists and terrorist weapons while fulfilling the OBP's traditional and still very important mission of detecting, interdicting, and apprehending those who attempt to illegally enter or smuggle any person or contraband across sovereign borders of the U.S.

The priority goal of the OBP is to strengthen the U.S. borders to prevent the entry of IEs, terrorist weapons, narcotics and other contraband. The principle objective of the OBP is to apply appropriate levels of OBP personnel, intelligence, technology, and infrastructure resources to increase the level of operational effectiveness until the likelihood of apprehension is sufficient to be an effective deterrent in creating acceptable border-wide control. The intent is to produce a level of deterrence that conveys an absolute certainty of detection, apprehension, and when appropriate, prosecution.

During recent years, the OBP has significantly increased its emphasis on deterrence. Deterrence is achieved only when the OBP has the ability to create and convey the immediate, credible, and absolute certainty of detection and apprehension. As such, tactical infrastructure components, such as lighting and fences, are a critical element in the current enforcement strategy. Developing trends such as the continued urbanization and industrialization of the immediate border, the recognition of environmental preservation concerns, and the increase of criminal trans-boundary activities (including trafficking in people, drugs, and terrorism efforts) continue to pose a border enforcement challenge and compound the need for tactical infrastructure along the international border.

1.1.4 JTF-N Mission Statement

The mission of JTF-N is to detect, monitor, and support the interdiction of suspected trans-national threats within and along the approaches to the continental U.S.; fuse and disseminate intelligence, contribute to the common operating picture; coordinate support to lead federal agencies; and support security cooperation initiatives in order to secure the homeland and enhance regional security.

JTF-N provides support to the OBP using Active duty, Reserve and National Guard units from all military branches. The OBP obtains military assistance through support requests forwarded to Operation Alliance. Operation Alliance is an organization of Federal, state, and local law enforcement representatives through which military support is made available to law enforcement agencies. Intelligence data drive the request or need for support. Operation Alliance determines and prioritizes the type of support needed and forwards the request to JTF-N. JTF-N then staffs the request and, with appropriate approval, identifies a unit that is willing and available to provide the requested support.

Proposed projects must be able to satisfy the training requirements of the participating military unit. A portion of each unit's respective Mission-Essential Task List must be accomplished during each JTF-N operation.

1.2 AREA OF OPERATION

As mentioned previously, the installation of permanent stadium style lights and a border infrastructure system is proposed within the Yuma Station's AO. The Yuma Station is responsible

for controlling a total of approximately 54 miles of international border, including approximately 28 miles along Sonora Mexico and approximately 17 miles along the Colorado River that forms the border between California and Arizona as well as the international border between Arizona and Mexico (see Figure 1-1). Much of the Yuma Station's AO is undeveloped desert and agricultural fields. Urban areas within the Yuma Station's AO include Yuma, Somerton, San Luis, and Gadsden, Arizona. San Luis, Arizona and Andrade, California are legal POEs between the U.S. and Mexico, where both sides of the border area are developed. Developed areas provide concealment opportunities for IEs, and thus are popular crossing areas for IEs.

1.3 REGULATORY AUTHORITY

The primary sources of authority granted to OBP agents are the Immigration and Nationality Act (INA), found in Title 8 of the United States Code (8 USC), and other statutes relating to the immigration and naturalization of aliens. The secondary sources of authority are administrative regulations implementing those statutes, primarily those found in Title 8 of the Code of Federal Regulations (8 CFR Section 287), judicial decisions, and administrative decisions of the Board of Immigration Appeals. In addition, the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) and subsequently the Homeland Security Act, mandates DHS to acquire and/or improve equipment and technology along the border, hire and train new agents for the border region, and develop effective border enforcement strategies.

Subject to constitutional limitations, OBP agents may exercise the authority granted to them in the INA. The statutory provisions related to enforcement authority are found in Sections 287(a), 287(b), 287(c), and 287(e) [8 USC § 1357(a,b,c,e)]; Section 235(a) [8 USC § 1225]; Sections 274(b) and 274(c) [8 USC § 1324(b,c)]; Section 274(a) [8 USC § 1324(a)]; and Section 274(c) [8 USC § 1324(c)] of the INA. Other statutory sources of authority are Title 18 of the United States Code (18 USC), which has several provisions that specifically relate to enforcement of the immigration and nationality laws; Title 19 [19 USC § 1401(i)], relating to U.S. Customs Service cross-designation of immigration officers; and Title 21 [21 USC § 878], relating to Drug Enforcement Agency cross-designation of immigration officers.

1.4 PURPOSE AND NEED

The U.S. experiences a substantial influx of illegal immigrants and drugs each year. Both of these illegal activities cost U.S. citizens billions of dollars annually due directly to criminal

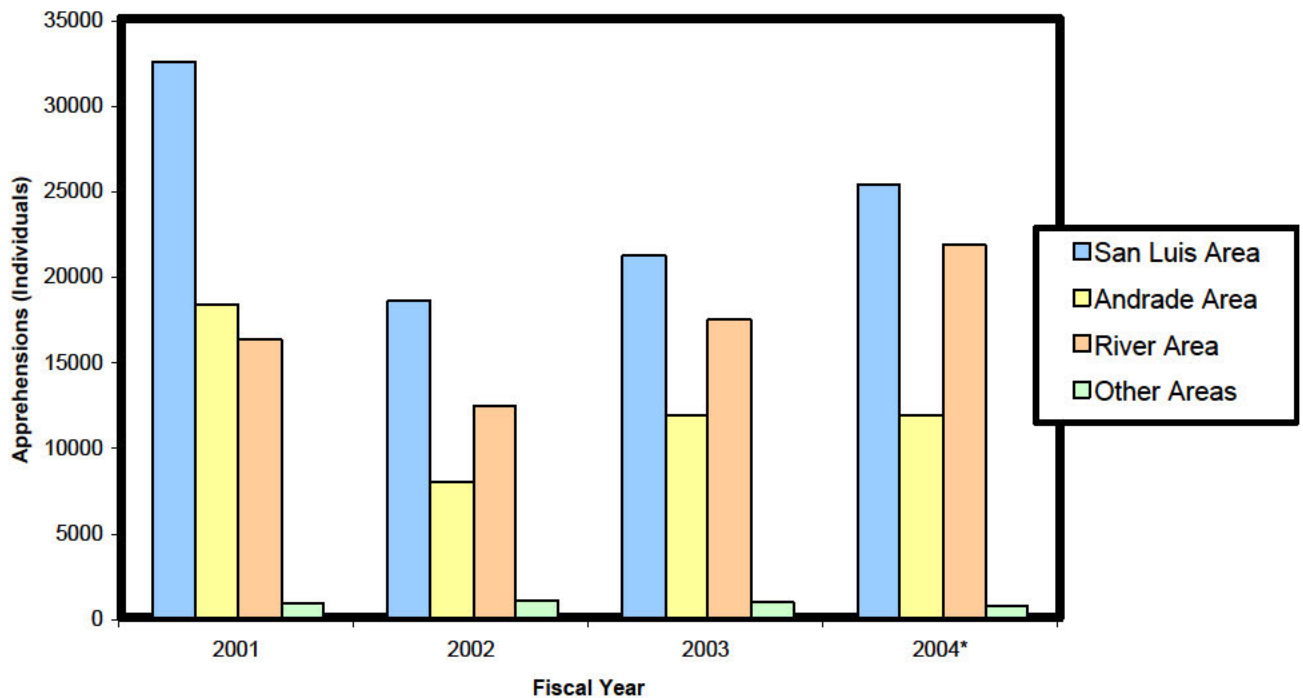
activities, as well as the cost of apprehension, detention, and incarceration of criminals; and, indirectly in loss of property, illegal participation in government programs, and increased insurance costs. These increases have necessitated the construction and implementation of various infrastructure systems to enhance the OBP's ability to detect, apprehend, and deter entries of illegal aliens, terrorists, and drug traffickers. The combination of sound infrastructure (e.g., roads, fences, barriers, and technology components) and adequate resources (e.g., vehicles, field agents, support personnel, etc.) is essential for the safety of the OBP agents and the effective enforcement of the border strategy and integral to the success of the OBP to gain, maintain, and extend control of the border.

Because of the development on both sides of the international border the San Luis and Colorado River areas are a popular crossing point for IEs. The San Luis and Colorado River areas are the highest traffic areas in the Yuma Station's AO (Figure 1-3). If IEs can breach the existing primary border fence or cross the agricultural fields adjacent to the Colorado River undetected and reach the developed areas of San Luis, they can mix into the general population of the area. Once IEs have mixed into the general population, it is difficult for OBP agents to discern between the IEs and legal citizens. In addition, OBP agents frequently are attacked by IEs throwing rocks and OBP agents have had to use gunfire in isolated cases to escape the attacks in the area between San Luis and the Colorado River. Installation of an enforcement zone would minimize this dangerous situation for the OBP agents and IEs as well. Further, due to the poor lighting conditions in the project area it is often difficult to discern if an IE is carrying a firearm or a non-lethal object. Thus, creating a safety concern for both the OBP agents and IEs.

Furthermore, the Greater Yuma Port Authority proposes to construct a commercial POE approximately 5 miles east of the existing POE in San Luis (Bureau of Reclamation [BOR] 2000). New development is likely to occur near this new POE as commercial traffic increases in the area. As a result of this new development (i.e., gas stations, food stores, eateries) the potential exists for an increased flow of IEs in conjunction with the increased opportunity of concealment within these new business areas, thus furthering the need for a stronger and permanent footprint for enforcement operations within the area.

The Preferred Action would allow the OBP to establish a permanent footprint for enforcement operations. Rapidly developing interests, such as urbanization, industrialization, and

Figure 1-3. Yuma Station Apprehensions by Enforcement Area (2001-2004)



*Note: Apprehensions for Fiscal Year 2004 are for the period October 1, 2003 to June 30, 2004.

environmental preservation along the immediate border need to be balanced with the OBP's need to present an effective deterrent profile and effectively secure the immediate border area.

The completion of the Preferred Action would empower the OBP to fully engage the proactive enforcement approach. Maintaining the status quo would allow IEs to continue to breach the U.S.-Mexico border. The completion of the Preferred Action would create an opportunity for OBP agents to gain an advantage over IEs who exploit the U.S.-Mexico border. A secure infrastructure system would establish a safe and solid foundation for the continued development of neighborhoods, businesses, parks, and environmental preserves. This strategy is the bedrock for the future of illegal immigration control. It is a strategy emphasizing flexibility that is formulated upon a state of deterrence achieved through a well-communicated certainty of detection and apprehension.

Briefly, the purpose and need for the permanent stadium style lights and border infrastructure system proposed by the OBP are to:

- (1) Establish a level of deterrence through the certainty of detection and apprehension;
- (2) Facilitate the OBP mission to prevent the entry of terrorists and their weapons;
- (3) Enhance the safety, effectiveness, and efficient environment in which to accomplish the OBP mission;
- (4) Enhance the effectiveness of the apprehension activities through the flexible deployment of resources and agents; and,
- (5) Protect sensitive resources, public and private lands, and U.S. residents from IEs, illegal activities, and terrorists.

1.5 APPLICABLE ENVIRONMENTAL STATUTES AND REGULATIONS

This EA was prepared by the U.S. Army Corps of Engineers (USACE), Fort Worth District, in accordance with, but not limited to the NEPA of 1969; Endangered Species Act (ESA) of 1973, as amended; the National Historical Preservation Act (NHPA) of 1966, as amended; and the Archeological and Historical Preservation Act (AHPA) of 1974, as amended. Table 1-1 summarizes the pertinent environmental statutes and regulations that guided the development of this EA.

1.6 REPORT ORGANIZATION

This report is organized into nine major sections including this introduction and the description of the purpose and need, and location of the proposed project. Section 2.0 describes all alternatives considered for the project. Section 3.0 discusses the environmental features potentially affected by the project, while Section 4.0 discusses the environmental consequences for each of the viable alternatives. Environmental design measures are discussed in Section 5.0 and public comments as well as the Notice of Availability (NOA) are presented in Section 6.0. Sections 7.0, 8.0, and 9.0 present a list of the references cited in the document, a list of acronyms and abbreviations, and a list of the persons involved in the preparation of this document, respectively.

Appendix A includes a list of non-native invasive plant species. Appendix B includes the lists of Federally and state protected species. Appendix C contains correspondence letters that were sent and received during the preparation of this EA.

Table 1-1. Applicable Environmental Statutes and Regulations

Federal Statutes
Archeological and Historical Preservation Act of 1974
Clean Air Act of 1955, as amended
Clean Water Act of 1977, as amended
Endangered Species Act of 1973, as amended
Migratory Bird Treaty Act of 1972
National Historic Preservation Act of 1966, as amended
National Environmental Policy Act of 1969, as amended
Watershed Protection and Flood Prevention Act of 1954
Wild and Scenic Rivers Act of 1968, as amended
Farmland Protection Policy Act of 1980
Native American Graves Protection and Repatriation Act of 1990
Executive Orders, Memorandums, etc.
Floodplain Management (E.O. 11988) of 1977
Protection of Wetlands (E.O. 11990) of 1977
Federal Actions to Address Environmental Justice to Minority Populations and Low-Income Populations (E.O. 12898) of 1994
Protection of Children from Environmental Health Risks (E.O. 13045) of 1997
Protection of Migratory Birds & Game Mammals (E.O. 11629) of 1971
Indian Sacred Sites (E.O. 13007) of 1996
Consultation and Coordination with Indian Tribal Governments (E.O. 13175) of 2000
Government-to-Government Relations with Native American Tribal Governments (Presidential Memorandum) of 1994

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SECTION 2.0
ALTERNATIVES



2.0 ALTERNATIVES

Four alternatives were identified and considered during the planning stages of the proposed project: the Preferred Action Alternative, the Lights Only Alternative, the Lights and Road Without Fence Alternative and the No Action Alternative. The following paragraphs describe the alternatives considered.

2.1 ALTERNATIVE 1: PREFERRED ACTION ALTERNATIVE

The Preferred Action Alternative encompasses approximately 13 linear miles along the Colorado River and the U.S.-Mexico border and includes the installation of various infrastructure in three different phases to assist in the deterrence and apprehension of IEs attempting to cross the U.S.-Mexico border within the Yuma Station's AO. The infrastructure to be installed would include:

- Permanent stadium style lights
- Extension of primary border fence
- Secondary border fence
- All-weather patrol road
- Maintenance road
- Security fence

The Preferred Action Alternative is staged in phases based on the need and importance for the infrastructure installation in each of the areas. If the Preferred Action Alternative is approved, it is anticipated that lighting construction in Phase I could begin in January 2005 and that both Phases I and II could be completed by the end of calendar year 2007. Infrastructure installation would be conducted within the phases as funding and resources become available. Construction of Phases I and II could occur concurrently depending on the availability of resources. Phase III would be the last phase constructed as part of this project.

Phase I includes the areas west of the San Luis POE to the Colorado River. Stadium style lights, secondary border fence, an all-weather patrol road, a maintenance road and a security fence would be constructed along an approximately 2-mile corridor. In areas outlined by the Preferred Action Alternative, the proposed 150-foot enforcement zone would extend 90 feet beyond the 60-foot corridor used by the OBP for enforcement actions, and further where the project deviates

outside the proposed 150-foot enforcement zone west of Friendship Park (Figure 2-1). Immediately past the southwest corner of the Bureau of Land Management's (BLM) Lot 14 the secondary fence alignment would deviate approximately 446 feet north to an existing levee then turn west and trend approximately 1,516 feet where it would turn south and return to the 150-foot alignment north of the border. The purpose of this deviation to the north is to avoid existing canals and levees located between San Luis and the West Main Canal. Also included in Phase I is approximately 1 mile of stadium style lights along the levee north of the San Luis wastewater treatment facility (see Figure 2-1). Stadium style lights north of the wastewater treatment facility are proposed to illuminate the agricultural fields west of the levee. This area is commonly used by IEs attempting to reach residential developments in the area.

Phase II includes the construction of stadium styles lights, a secondary fence, an all-weather patrol road, a maintenance road, and security fence along an approximately 7-mile corridor east of the San Luis POE (Figure 2-2). Also, the primary border fence would be extended approximately 3.5 miles from its current terminus east to Avenue C. Currently, the Greater Yuma Port Authority proposes constructing a new commercial POE at Avenue E (BOR 2000). The new POE would overlap with the Phase II enforcement zone at the eastern end of the project area. The enforcement zone along this corridor would be 150 feet from the international border.

Phase III includes the construction of stadium style lights along an approximately 3-mile corridor near Gadsden, Arizona (Figure 2-3). The lights would be located between the east side of the Wellton-Mohawk Bypass Drain and the west toe of the Yuma Valley levee in a previously disturbed area. The lights would be designed to illuminate the agricultural fields west of the Wellton-Mohawk Bypass Drain. The fields are commonly crossed by IEs attempting to reach the residential areas of Gadsden.

The entire 150-foot enforcement zone would be cleared of vegetation and graded prior to infrastructure installation to eliminate concealment opportunities and improve the line of sight of the OBP agents prior to infrastructure installation. Currently 60 feet of the proposed 150-foot enforcement zone is intensively used for enforcement actions by the OBP. The existing 60-foot corridor is commonly referred to as the "Roosevelt Easement" and was established through a land withdrawal under a Presidential Proclamation. This area is highly disturbed from OBP enforcement activities and the construction of canals and levees. In order to meet



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Date: November 2004

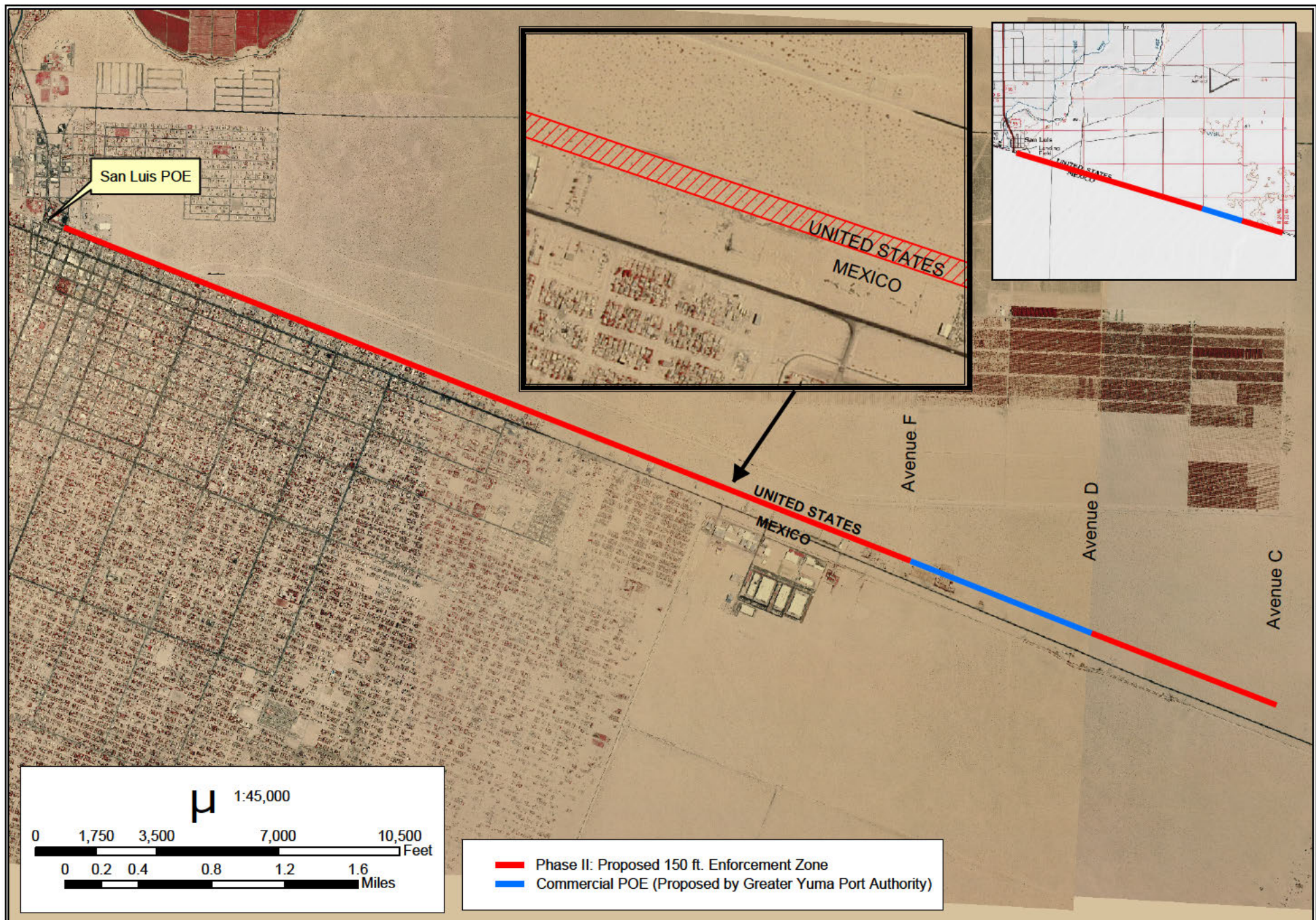


Figure 2-2: Phase II Project Location

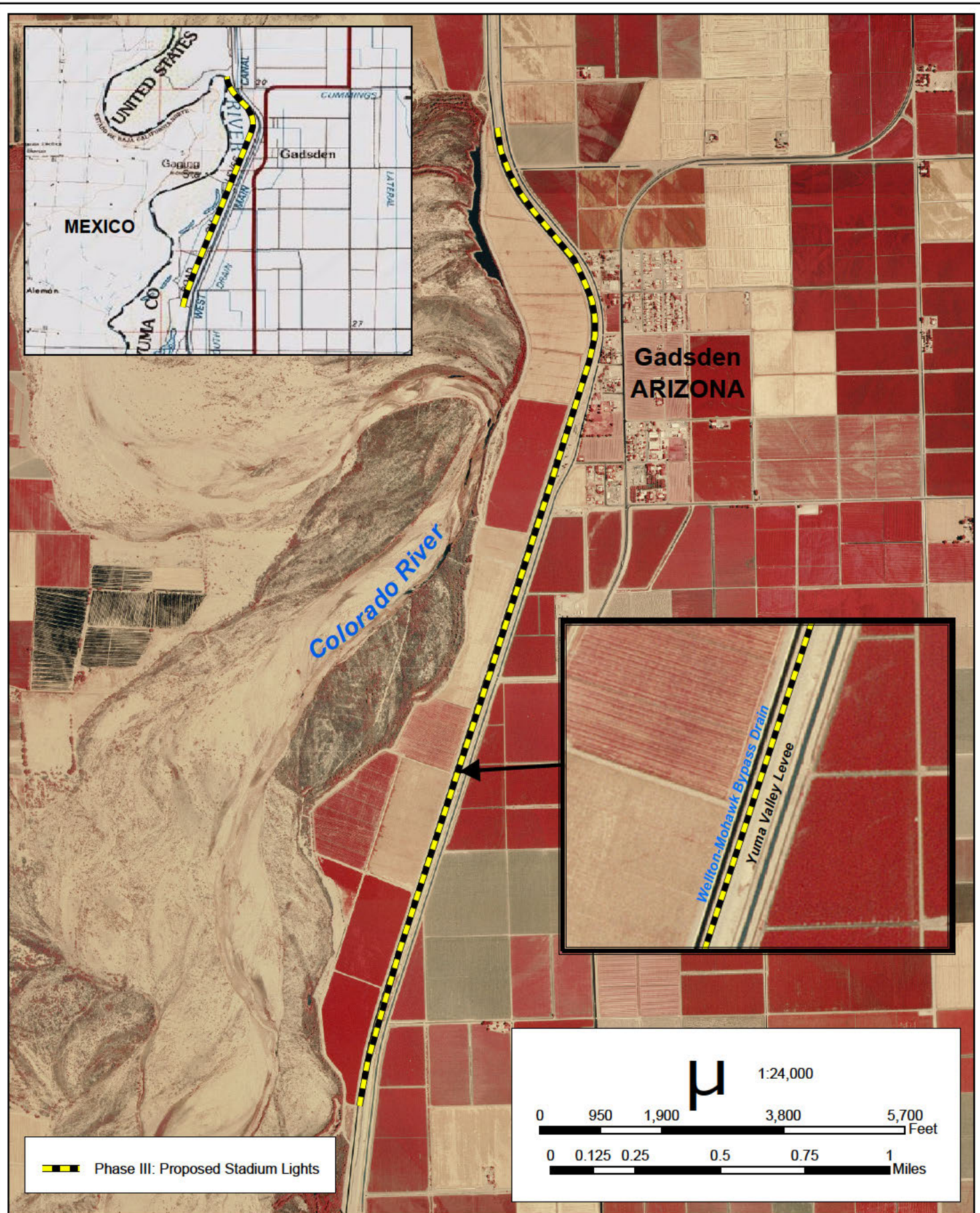


Figure 2-3: Phase III Project Location

the objectives of this project, the OBP would obtain an easement for an additional 90-foot corridor north of the existing 60-foot Roosevelt Easement (in areas designated for a 150-foot enforcement zone) from the Bureau of Reclamation (BOR) and would obtain a temporary right-of-way (ROW) reservation that would ultimately be replaced by a land withdrawal from the BLM for the additional 90-foot corridor. On Arizona State Trust lands, the additional 90-foot corridor would be acquired by condemnation. A schematic design of the typical cross section of the 150-foot enforcement zone proposed for the Preferred Action Alternative is illustrated in Figure 2-4.

2.1.1 Permanent Stadium Style Lights

Permanent stadium style lights are proposed to replace the existing portable lights currently deployed along the international border near San Luis and provide a light source in areas that are currently dark. In Phases I and II, the lights would be located approximately 97 feet from the primary border fence within the proposed 150-foot enforcement zone (Figure 2-4). In Phase III, the lights would be located between the east side of the Wellton-Mohawk Bypass Drain and the west toe of the Yuma Valley levee in a previously disturbed area. The permanent lights would be placed 100 to 300 feet apart and the



Photograph 2-1. Stadium Style Lighting

lights would be at a height of 50 to 80 feet (Photograph 2-1) with the angle of illumination facing downward (see Figure 2-4). Light poles would be anchored in a concrete footing. Electricity would be supplied via subsurface conduit, connecting to the existing power grid. Electricity for the permanent lights would be provided by Arizona Public Service (APS). APS would be responsible for designing and installing required electrical infrastructure. Any additional utility ROWs on Federal lands required to extend power to the project area would be the responsibility of APS to obtain.

The overall ground disturbance during installation would be approximately 41 square feet (ft²) per light pole. In Phases I and II, the lights would be designed to provide approximately 5 foot-candles in all areas between the primary and proposed secondary fence. In Phase III, the lights would be designed to provide 3 to 5 foot-candles of illumination in the agricultural fields. Lights would be operated continuously from dusk till dawn. High-pressure sodium lights are proposed in Phases I and II and metal halide lights are proposed in Phase III.

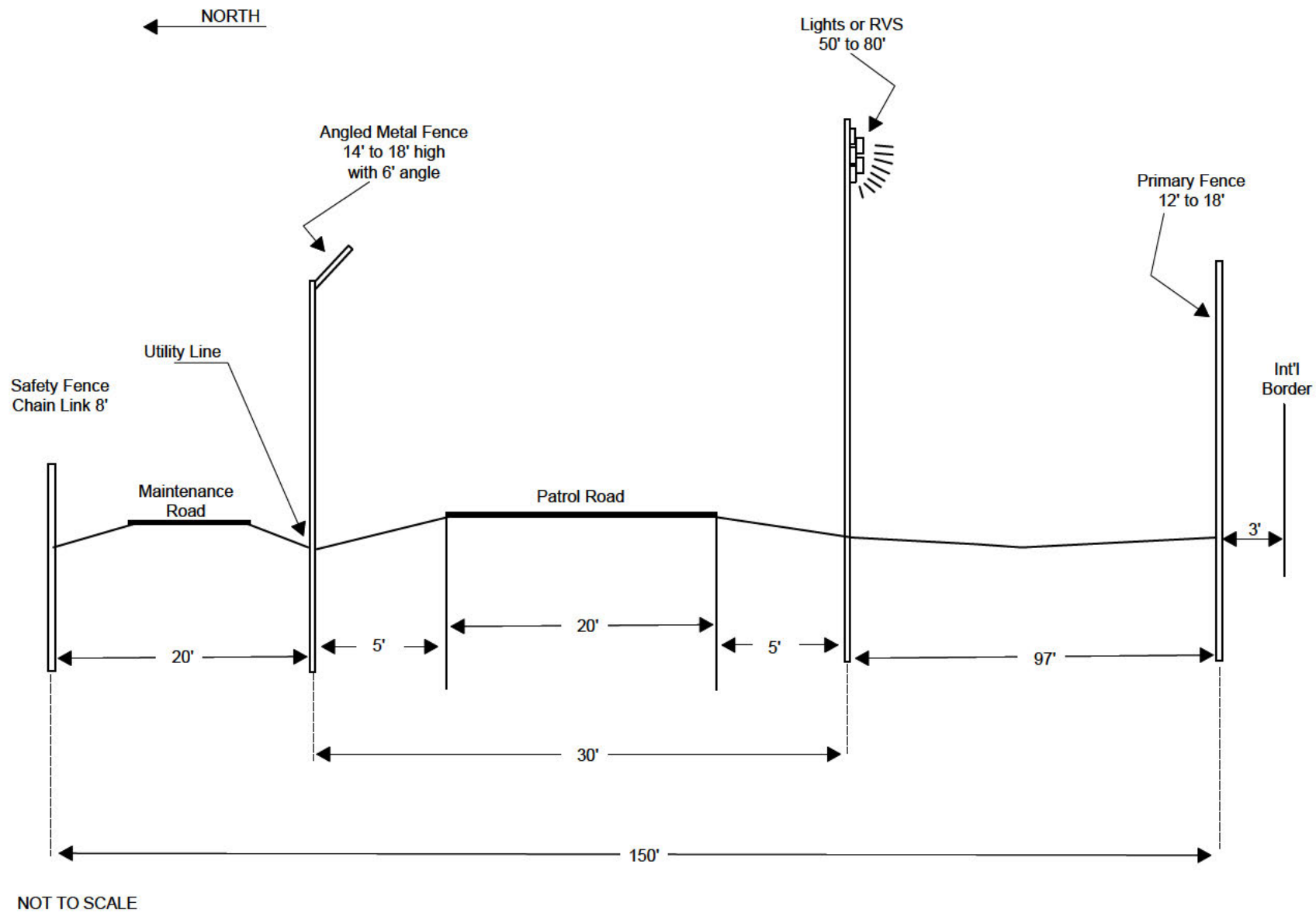


Figure 2-4: Road Cross-Section Schematic

Stadium style lights would be the first element of the enforcement zone infrastructure constructed. Illumination would enhance the deterrence of IEs, as well as, improve the safety of the OBP agents when confronting IEs at night. The installation of stadium style lights would be the most cost effective infrastructure to implement immediately under the sector's current funding agenda. Lighting in Phase III would be the last element constructed. Other elements (e.g., secondary fence, all-weather roads, etc.) would be constructed in the future, as funding becomes available. Construction of stadium style lighting could be initiated in January 2005, if all environmental documentation and engineering is complete at that time.

2.1.2 Extension of Primary Border Fence

The primary fence is designed to be an impediment to people and vehicles entering the U.S. illegally. The current primary fence extends west from the San Luis POE approximately 2 miles to the salinity canal and east from the POE approximately 3.5 miles and is constructed of landing mat (Photograph 2-2). The remainder of the border is currently a triple strand, barbed wire fence, and in many places the fence has been cut or removed by IEs. The Preferred Action Alternative would extend the primary fence approximately 3.5 miles east from the current terminus of the primary fence to Avenue C. The primary fence would be located along an alignment approximately 2 feet north of the international border. Near the San Luis commercial POE, sections of primary fence may be replaced with Sandia, landing mat, or some other material suitable for fencing (Photograph 2-3).



Photograph 2-2. Current Primary Fence



Photograph 2-3. Sandia Fencing

2.1.3 Secondary Border Fence

Secondary fencing proves invaluable in denying quick access to concealment and escape inside the U.S. It performs a dual role in border security by being (1) a visual deterrent and (2) a formidable physical barrier impeding IEs and increasing the window of time OBP agents have to

respond. It is largely successful because it affords the OBP access to both sides. While IEs run little risk of apprehension in breaching the primary fence, defeating the secondary fencing requires them to take a substantial risk of apprehension—a risk that translates into deterrence.

The primary function of the border infrastructure system, as well as each of its components is to deter illegal entry attempts, but inevitably each component would be tested by criminal elements. To function optimally within the overall system, any secondary barrier must stave off attempts at climbing over and digging under, as well as withstand the certain threat of vandalism.

The standard design for the secondary fence consists of vertical secura metal mesh panels attached to 16-ft steel poles. Secura mesh is a 16-gauge, expanded metal that provides visibility through the fence (except at oblique angles), yet is small enough to prohibit saws, files and other type cutting equipment from being inserted into the holes (see Photograph 2-3). Additional 6-ft panels are secured to the top panels at an angle of 45 degrees toward the south (see Figure 2-4). The poles would be anchored to a 12-inch-wide by 4-ft-deep concrete footing that runs the length of the proposed fence. The fence panels are secured to the fence posts using steel plates and flat-head bolts. The head of the bolts are on the south side of the secondary fence to prevent vandalism of the bolt threads/nuts. Upon completion of installation, electrical lines and junction boxes would be located underground on the north side of the secondary fence to prevent vandalism.

As part of the secondary fence construction, a series of gates would be provided within the fence. The OBP agents would use the gates to enter and exit the corridor from the maintenance road. The corridor would be restricted to the general public. The gates would be used as access points along the entire length of the secondary fence and would consist of 4.5-foot-wide pedestrian gates, 10-foot-wide vehicle swing gates, and overhead rolling vehicle gates (15-foot-wide and 22-foot-wide).

2.1.4 Security Fence

The security fence would generally be placed parallel to and approximately 20 to 24 feet north of the secondary fence. The security fence would be placed on the northern edge of the maintenance road. The security fence would typically be an 8-foot high chain link fence, topped with barbed wire. This fence would provide additional assurances of apprehension, and thus deterrence, should IEs somehow breach the secondary fence. Additionally, the security fence

would provide protection from vandalism of the secondary fence by U.S. residents and demarcate the DHS property line.

2.1.5 All-Weather Patrol Road

A typical patrol road would run parallel to and immediately south of the secondary fence in Phases I and II. The patrol road would be constructed as an all-weather type road. This would consist of a compacted base surfaced using a cold material process. The road would be 20 feet wide with 5-foot shoulders, for a total of 30 feet in width. An appropriate crown would be maintained for adequate drainage. The incorporation of an all-weather surface would eliminate or reduce ruts and potholes that create unsafe conditions at higher vehicular speeds. Thus, the surface would allow the OBP agents to travel at high speeds (*i.e.*, 35 miles per hour) and enhance their response to illegal entries or other emergency situations. The patrol road would be a permanent fixture that would be utilized by the OBP 24 hours a day, 365 days a year.

2.1.6 Maintenance Road

A maintenance road would be constructed parallel to the secondary fence. The maintenance road would be immediately north of the secondary fence and would run the entire length of the fence (see Figure 2-4). The maintenance road would be maintained by grading the surface of the soil (20 feet wide), thereby creating a clear, somewhat smooth, level surface on which to drive maintenance vehicles. The security fence would typically be located on the northern toe of the maintenance road, as described previously.

Placement of the maintenance road on the north side of the secondary fence would allow access to the utility lines and easy repair/replacement of the border infrastructure system. This maintenance road is required to enable the OBP to perform necessary functions. Additionally, the maintenance road would serve as an emergency route for OBP or other law enforcement agencies, if necessary, and would be utilized only on an as-needed basis.

2.2 ALTERNATIVE 2 – LIGHTS ONLY

Under this alternative, the stadium style lights and maintenance road would be the only part of the infrastructure system implemented. In Phases I and II, the lights would be located approximately 97 feet from the primary border fence. In Phase III, the lights would be located between the east side of the Wellton-Mohawk Bypass Drain and the west toe of the Yuma Valley levee in a

previously disturbed area. The permanent lights would be placed 100 to 300 feet apart and the lights would be at a height of 50 to 80 feet with the angle of illumination facing downward. The maintenance road (20 feet wide), similar to the description in Section 2.1.6, would be constructed along the illuminated corridor to allow vehicle access for installation and maintenance of the stadium style lighting structures.

2.3 ALTERNATIVE 3 – LIGHTS AND ROADS WITHOUT FENCES

Under this alternative, the stadium style lights, a drag road, and an all-weather patrol road would be constructed but the secondary fence, maintenance road, cleared enforcement zone, and security fence would not be installed. Also, the primary border fence in Phase II would not be extended. The all-weather road would be 20 feet wide with 5-foot shoulders, for a total of 30 feet in width, and approximately 97 feet north of the primary border fence. The all-weather patrol road would be a permanent fixture that would be utilized by the OBP 24 hours a day, 365 days a year.

In addition, a drag road (8 feet wide) would be constructed as part of this alternative. Drag roads are unimproved roads that are constructed parallel to patrol roads in areas which are highly traveled or regularly crossed by illegal entrants. The surface of these roads is prepared using a method known as “dragging” (Photograph 2-4). “Dragging” is accomplished by the use of a four-wheel drive vehicle towing several tires bolted together and pulled on sections of the road at speeds between 5



Photograph 2-4. Drag Road

and 7 miles per hour. This method erases old tracks and smoothes the road surface so any new tracks crossing the road can be easily detected. The frequency at which these roads are prepared varies for each road, but can occur several times daily.

Under this alternative, the lights would be installed in the same manner (design, location, and phases) as described for the previous alternatives. The drag road would be located immediately adjacent to the lights. The all-weather patrol road would be located immediately north of the drag road. Without the installation of a secondary fence and extension of the primary border fence,

apprehension would not be absolute and thus, deterrence would be diminished when compared to Alternative 1.

2.4 ALTERNATIVE 4 – NO ACTION ALTERNATIVE

Under the No Action Alternative, the OBP would continue its current enforcement strategies within the constraints of the current infrastructure. This alternative would continue to allow normal maintenance and operation requirements of the temporary lights, existing roads and border fences. However, without the installation of the border infrastructure system and stadium style lights, the OBP agents would be restricted by the limitations of the current infrastructure; and consequently, apprehension efforts would be delayed. The No Action Alternative would not enhance the OBP's ability to detect, apprehend, and deter IEs.

The No Action Alternative has been carried forward for analyses, as required by the CEQ regulations. The No Action Alternative describes the continued management of the project corridor if the other proposed alternative is not implemented. The No Action Alternative does not meet the purpose and need for the proposed project.

2.5 CONSTRUCTION PERSONNEL AND EQUIPMENT

OBP maintenance staff, JTF-N units, National Guard units, or private contractors would complete the proposed construction and installation of the border infrastructure system, including stadium style lights. Equipment staging and bivouac areas would be located within previously disturbed areas to minimize potential effects to the environment. Construction of the stadium style lights is anticipated to begin in January 2005.

Equipment anticipated to be used during the construction include a road grader, crane, bulldozer, front-end loader, flatbed truck, water truck, and roller/compactor.

2.6 SUMMARY

All four alternatives will be carried forward for analysis. An alternative matrix (Table 2-1) shows how each of the alternatives satisfies the purpose and need. Table 2-2 presents a summary matrix of the impacts from the four alternatives analyzed and how they affect the environmental resources in the Region of Influence (ROI).

Table 2-1. Alternative Matrix of Purpose and Need to Alternatives

Requirements	Alternative 1: Preferred Action Alternative	Alternative 2: Lights Only Alternative	Alternative 3: Lights and Roads Without Fence Alternative	Alternative 4: No Action Alternative
Facilitate the OBP's mission to prevent the entry of terrorists and their weapons	YES	YES	YES	NO
Enhance the safety, effectiveness, and efficient environment in which to accomplish the OBP mission	YES	YES	YES	NO
Enhance the effectiveness of the apprehension activities through the flexible deployments of resources and agents	YES	PARTIALLY	PARTIALLY	NO
Protect sensitive resources, public and private lands and U.S. residents from IEs, illegal activities, and terrorists	YES	PARTIALLY	PARTIALLY	NO

Table 2-2. Summary Matrix of Potential Impacts

Affected Environment	No Action Alternative	Preferred Action Alternative	Lights Only Alternative	Lights and All-Weather Road Alternative
Land Use	Land use would not change in the project area. Illegal traffic would continue to adversely affect land use in proximity to the border. Businesses and neighborhoods would continue to be targeted by IEs for their concealment opportunities. Sensitive and wildlife management areas would continue to be degraded by illegal traffic.	The Preferred Action Alternative would alter the land use on 76 acres within the project area from its current use to that of the particular infrastructure component implemented. Land would be acquired from other Federal agencies, private landowners, or the Arizona State Trust. This alternative would have a beneficial indirect effect on adjacent land use and natural resources as a result of decreasing illegal traffic.	The Lights Only Alternative would permanently impact land use on 0.6 acre and temporarily impact 19.3 acres. However, beneficial indirect effects would be less in the absence of the proposed secondary fence and all-weather patrol road.	The Lights and All-Weather Road Alternative would alter approximately 41.5 acres. However beneficial indirect effects would be realized to a lesser degree.
Soils	Indirect adverse impacts to soils as a result of illegal pedestrian and vehicle traffic and subsequent OBP enforcement actions would continue and likely increase.	The Preferred Action Alternative would affect 163 acres of soils in the project area; however, of this approximately 87 acres have been previously disturbed or developed. Erosion would be expected to temporarily increase during construction. This alternative would have a beneficial indirect effect on soils as a result of reducing illegal traffic.	Permanent impacts would occur on 0.6 acre and 19.3 acres of temporary impacts on soils as a result of installing stadium style lighting poles. Erosion would be expected to increase temporarily during and immediately following construction. Beneficial indirect effects would be realized to a lesser degree than the Preferred Action Alternative.	The Lights and All-Weather Road Alternative would affect 41.5 acres of soils. Erosion would be expected to increase temporarily during and immediately following construction. Beneficial indirect effects would be realized to a lesser degree.

Table 2-2, continued

Affected Environment	No Action Alternative	Preferred Action Alternative	Lights Only Alternative	Lights and All-Weather Road Alternative
Biological Resources	The No Action Alternative would not directly affect biological resources. However indirect adverse effects to vegetation, wildlife, non-native invasive species, and protected species would continue or increase as a result of increased illegal traffic. Illegal traffic tramples vegetation and degrades wildlife habitat through the loss of vegetation, deposition of trash, and the abandonment of vehicles.	Approximately 76 acres of vegetated area dominated by bursage and creosotebush would be removed. The Preferred Action would have an indirect beneficial effect as a result of reducing fugitive dust that settles on plants and reduces photosynthesis. The Preferred Action would also reduce the degradation of vegetation and the riparian zone along the Colorado River as a result of reducing illegal traffic. Approximately 98 acres of wildlife habitat would be directly impacted; however, a majority of this area has been previously disturbed. No Federally protected species would be adversely affected. Indirect beneficial effects on vegetation, wildlife, and protected species are anticipated as a result of reducing illegal off-road traffic. Approximately 76 acres of undisturbed soil would be impacted making the area susceptible to non-native invasive species. The preferred action would have a beneficial indirect impact as a result of reducing IE traffic that is a seed source for non-native invasive species.	This alternative would not reduce fugitive dust and indirect beneficial effects to vegetation and the riparian area along the Colorado River would be less than those expected under the Preferred Action Alternative. Impacts to wildlife habitat would be negligible (0.6 acres permanent impacts, and 19.3 acres temporary impacts). Effects to non-native invasive species would be similar but less than the Preferred Action. Approximately 17 acres of undisturbed soils would be impacted.	This alternative would reduce fugitive dust. Approximately 41.5 acres of wildlife habitat would be directly impacted. Indirect beneficial effects to vegetation, non-native invasive species, and the riparian area along the Colorado River would be less than those expected under the Preferred Action Alternative.
Unique and Sensitive Areas	No direct effects are anticipated to unique and sensitive areas. However, illegal traffic would continue to degrade these resources.	The Preferred Action would impact approximately nine acres of the Yuma Desert Management Area.	Anticipated direct effects (0.5 acre) to the Yuma Desert Management Area would be less than the Preferred Action Alternative due to the omission of all-weather road construction and enforcement zone clearing.	Anticipated direct effects to the Yuma Desert Management Area would be less than the Preferred Action Alternative due to the omission of enforcement zone clearing.
Cultural Resources	No adverse effects are anticipated. Adverse indirect effects would include the continued and increased degradation of cultural resources from illegal traffic.	No adverse effects are anticipated. This alternative would have a beneficial indirect effect by reducing illegal traffic, thus reducing the potential effects to cultural resources.	No adverse effects are anticipated. Beneficial indirect effects would be similar to the Preferred Action, but slightly less.	No adverse effects are anticipated. Beneficial indirect effects would be similar to the Preferred Action, but slightly less.

Table 2-2, continued

Affected Environment	No Action Alternative	Preferred Action Alternative	Lights Only Alternative	Lights and All-Weather Road Alternative
Air Quality	Hydrocarbon emissions would remain <i>status quo</i> from the use of portable lights deployed in the project area. Fugitive dust emissions could increase if illegal traffic increase and the OBP agents are forced into off-road pursuits.	Hydrocarbon and fugitive dust emissions would increase temporarily during construction activities. However, they would be expected to be below <i>de minimus</i> threshold levels. Following construction fugitive dust and hydrocarbon emissions would be decreased from current levels. Hydrocarbon emissions would decrease without the operation of portable lights.	Similar, but slightly less impacts than the Preferred Action Alternative.	Similar, but slightly less impacts than the Preferred Action Alternative.
Water Resources	No adverse effects to surface or ground water supplies or quality are anticipated.	No adverse effects to surface or ground water supplies or quality are anticipated. Approximately 594,000 gallons of water would be used during construction of all-weather roads.	No adverse effects to surface or ground water supplies or quality are anticipated. Approximately 297,000 gallons of water would be used during construction activities to control fugitive dust.	No adverse effects to surface or ground water supplies or quality are anticipated. Approximately 594,000 gallons of water would be used during construction of all-weather roads.
Socioeconomics	No effects on the regional or local economy are anticipated. No additional protection from illegal vehicle and foot traffic or reduction in crime would be realized under this alternative.	No significant effects to the regional or local economy are anticipated. The Preferred Action Alternative would have a beneficial indirect effect by providing additional protection from illegal vehicle and foot traffic, potentially lower crime and improve the quality of life along the border.	Effects would be similar to the Preferred Action; however beneficial indirect effects would be slightly less.	Effects would be similar to the Preferred Action; however beneficial indirect effects would be slightly less.
Environmental Justice and Protection of the Children	This action would not violate Environmental Justice or Protection of Children issues and would not increase the safety of children illegally attempting to enter the U.S.	This action would not violate Environmental Justice or Protection of Children issues and would increase the safety of children illegally attempting to enter the U.S.	This action would not violate Environmental Justice or Protection of Children issues and would increase the safety of children illegally attempting to enter the U.S.	This action would not violate Environmental Justice or Protection of Children issues and would increase the safety of children illegally attempting to enter the U.S.

Table 2-2, continued

Affected Environment	No Action Alternative	Preferred Action Alternative	Lights Only Alternative	Lights and All-Weather Road Alternative
Noise	Noise levels would remain <i>status quo</i> .	Noise levels would be expected to temporarily increase during construction. Effects to noise levels in the area would be minor, localized, and temporary. Increased vehicle speeds on the all-weather road may increase noise emissions slightly. Elimination of the diesel powered portable lights would reduce nighttime noise levels in the project area.	Noise levels would be expected to temporarily increase during construction. Effects to noise levels in the area would be minor, localized, and temporary. Elimination of the diesel powered portable lights would reduce nighttime noise levels in the project area.	Noise levels would be expected to temporarily increase during construction. Effects to noise levels in the area would be minor, localized, and temporary. Increased vehicle speeds on the all-weather road may increase noise emissions slightly. Elimination of the diesel powered portable lights would reduce nighttime noise levels in the project area.
Aesthetics	Portable lights would continue to affect aesthetics.	Proposed Infrastructure would have a temporary adverse effect on aesthetics in the immediate vicinity of the project area. Permanent lighting may increase the background lighting; however this is expected to be minimal because the night skies are currently affected by the lights of San Luis and portable lights.	Proposed Infrastructure would have a temporary adverse effect on aesthetics in the immediate vicinity of the project area. Permanent lighting may increase the background lighting; however this is expected to be minimal because the night skies are currently affected by the lights of San Luis and portable lights.	Proposed Infrastructure would have a temporary adverse effect on aesthetics in the immediate vicinity of the project area. Permanent lighting may increase the background lighting; however this is expected to be minimal because the night skies are currently affected by the lights of San Luis and portable lights.

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SECTION 3.0
ENVIRONMENTAL FEATURES



3.0 ENVIRONMENTAL FEATURES

Discussions in this chapter are limited to only those resources that could potentially be affected by the OBP activities, as per CEQ guidance (40 C.F.R. §1501.7). Discussions of resources such as geology, utilities, communications, hazardous waste, climate, Areas of Critical Environmental Concern, Wilderness, and Wild and Scenic Rivers would not be impacted by this project for the following reasons:

- Geology: The construction activities proposed for this project do not include such practices that would alter the geology of the area. These activities would result in negligible and localized effects to geological features, primarily due to road construction.
- Utilities: No utilities (e.g., sewer, transmission lines, etc.) would be affected by the proposed action. Negligible amounts of energy (electricity and fuel) would be required to construct and install the infrastructure proposed for this project.
- Communications: The project would not affect communications systems in the area.
- Hazardous waste: The project would not generate hazardous waste or require construction that could potentially affect hazardous waste sites.
- Climate: The project would not affect nor be affected by the climate.
- Areas of Critical Environmental Concern: No Areas of Critical Environmental Concern are located within the project area.
- Wilderness: There are no areas in the project area designated as Wilderness; therefore, the proposed project would not affect designated Wilderness Areas.
- Wild and Scenic Rivers: The proposed project would not affect any designated Wild and Scenic Rivers because no rivers designated as such are located within the project area.

Therefore, the above listed resources will not be included for evaluation in this Draft EA.

3.1 LAND USE

Yuma County covers approximately 5,522 square miles of the southwest corner of Arizona (Arizona Department of Commerce [AZDC] 2002a). Mostly desert, land use is dependent upon soil characteristics and water availability. Agriculture, tourism, military, and government are the county's principal industries. The BLM accounts for 14.8 percent of land ownership; Indian reservations, 0.2 percent; the state of Arizona 7.7 percent, private or corporate 10.5 percent; and

other public lands 66.8 percent (AZDC 2002a) (Figure 3-1). Agriculture production is the principal land use in Yuma County. Agriculture employs 35 percent of the labor force in Yuma County (AZDC 2002a).

The cities of San Luis and Gadsden are in the southwest corner of the county, where the project is proposed. San Luis is a growing community of 18,345 residents (2002) directly adjacent to Mexico and California (AZDC 2002b). Gadsden is a small community north of San Luis along U.S. Highway 95. In 2000, the population of Gadsden was 953 residents (City-Data 2004). With the planning and development of a commercial POE near San Luis, these two cities would continue to grow (BOR 2000).

The new commercial POE at San Luis would be located at Avenue E, approximately 6 miles east of the current POE (BOR 2000). The new POE would stretch for 1 mile along the U.S.-Mexico border (BOR 2000), overlapping into the OBP project area for the proposed improvements discussed in this document.

Current land use in the project area includes the San Luis POE, San Luis Commercial Facility, OBP patrol roads, fencing and portable lighting, a levee road adjacent to the Wellton-Mohawk Bypass Drain, and Friendship Park in the City of San Luis. There is an existing 60-foot corridor (Roosevelt Easement) north of the U.S.-Mexico border that is currently heavily used by the OBP and other Federal law enforcement agencies for illegal immigration, counter drug, and counter terrorism actions.

The land for Friendship Park was patented (*i.e.*, deeded) to the City of San Luis by BLM under the Recreation & Public Purpose (R&PP) Act for the purpose of developing a park. Lands patented (*i.e.*, deeded) under the R&PP Act can only be used for the patented (*i.e.*, deeded) use. Friendship Park is a small municipal park, managed by the San Luis Department of Parks and Recreation. There is a playground, interactive water feature, public restroom, basketball court, parking lot and small green space.

Phase I of the project area is located on BLM and private lands. The project corridor in Phase II traverses Arizona State Trust, BLM, BOR, and private lands. Phase III is located on BLM and private property. The OBP would obtain an easement for the additional 90-foot corridor north of the existing 60-foot corridor (in areas designated for a 150-foot enforcement zone)



on BOR lands. A ROW reservation would initially be obtained from the BLM for the additional 90-foot corridor. Ultimately the OBP would obtain a land withdrawal for the 90-foot corridor. Friendship Park is included as part of the BLM lands affected in Phase I; however, the City of San Luis controls the use of the park. In order for the OBP to obtain the additional 90-foot corridor within Friendship Park, the City of San Luis would have to relinquish the additional 90-foot corridor to the BLM. A boundary survey coordinated with the BLM Cadastral Survey and an Environmental Site Assessment would have to be completed on the 90-foot corridor prior to the City of San Luis relinquishing the land to the BLM. The OBP would initially obtain a ROW reservation and ultimately a land withdrawal for the additional 90-foot corridor from BLM on former park property. On Arizona Trust lands, the additional 90-foot corridor would be acquired by condemnation.

The Arizona Standards for Rangeland Health and Guidelines for Grazing Administration was approved in April 1997. The standards apply to all lands managed by the BLM. A majority of the lands managed by the BLM within the project area are previously disturbed and committed to other activities. The lands in this area are in compliance with the Arizona Standards for Rangeland Health.

3.2 SOILS AND PRIME FARMLAND

According to the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) there are three soil associations and six soil types identified in the project area (Figure 3-2a, b, and c). The three soil associations are (1) Holtville-Gadsden-Kofa, which includes Gadsden clay, Glenbar silty clay loam, and Holtville clay soils, (2) Indio-Ripley-Lagunita, which includes Indio silt loam, and (3) Rositas-Superstition, which includes Superstition sand, and Rositas sand (USDA 1980).

The proposed project areas of Phases I and II are in Superstition and Rositas sands (Figure 3-2a and b). Phase III is located within Holtville clay, Glenbar silty clay loam, Gadsden clay, and Indio silt loam soil types (Figure 3-2c). Table 3-1 presents the potential for soil erosion during construction activities, by soil type.

Currently, no lands within the project footprint are being farmed. Some lands adjacent to the project footprint in Phases I and III are presently being farmed.

Figure 3-2a: Soil Types within Phase I

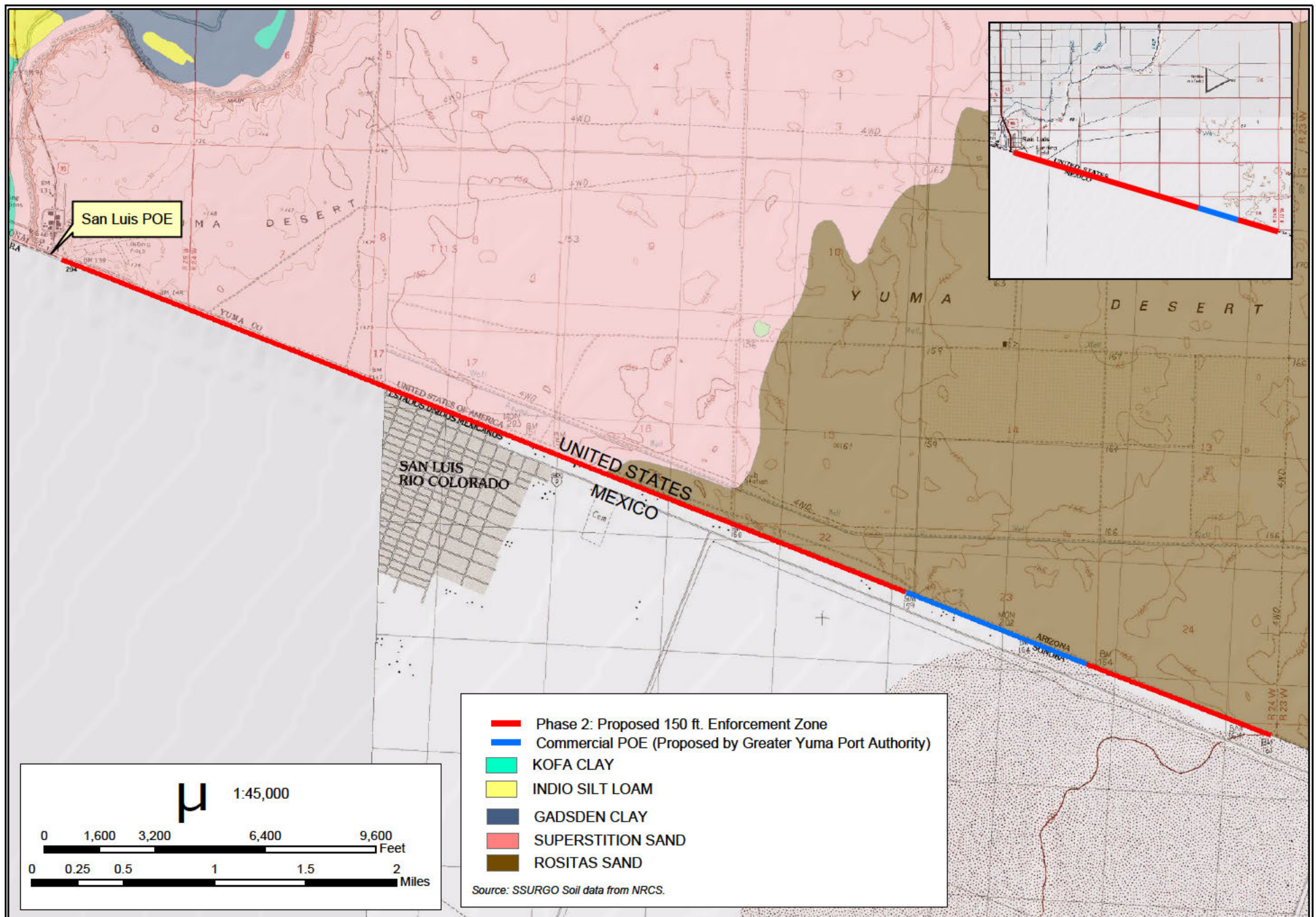


Figure 3-2b: Soil Types within Phase II

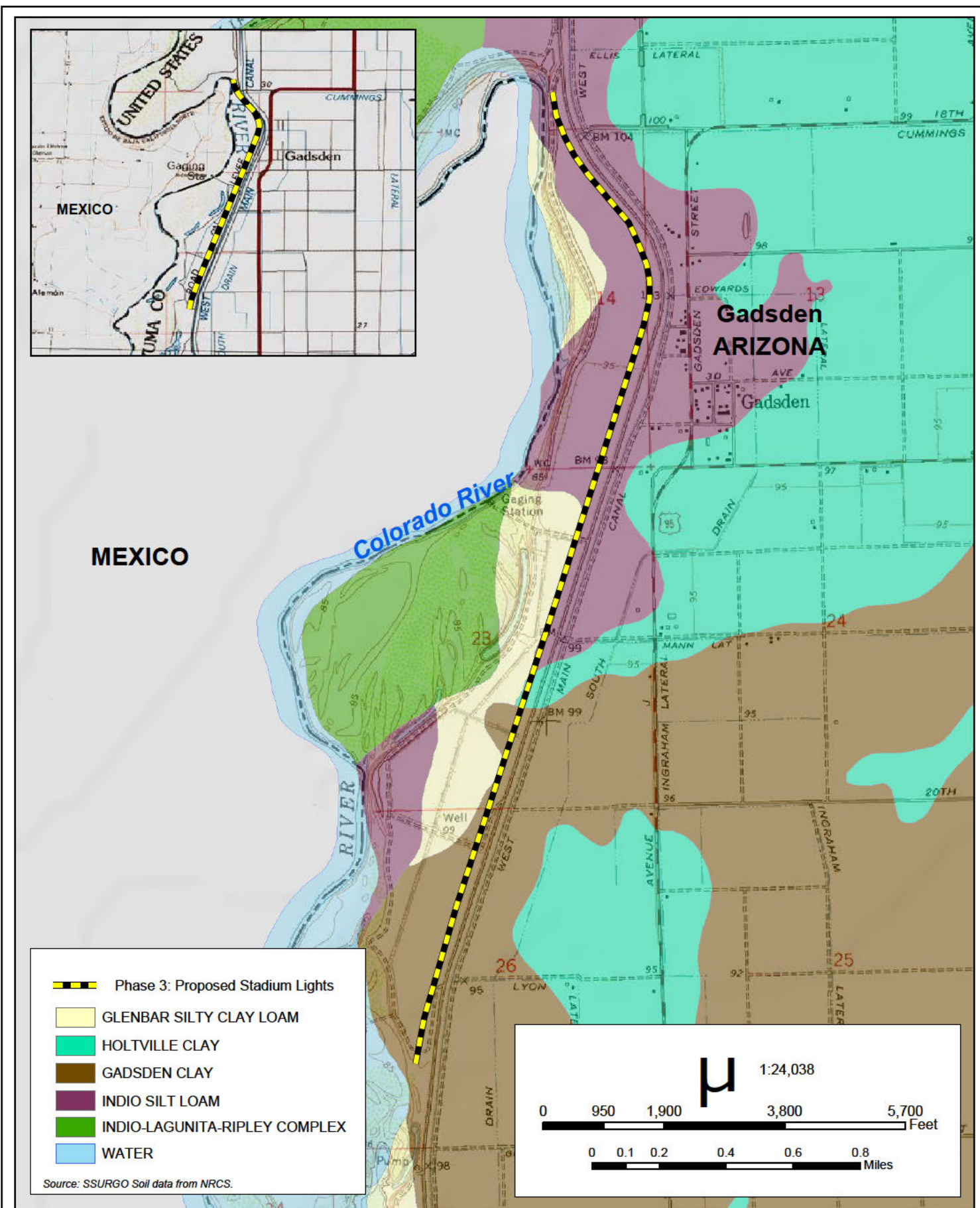


Figure 3-2c: Soil Types within Phase III

**Table 3-1. Potential for Soil Erosion During Construction Activities, by Soil Type
within the Project Area**

Map Unit/Soil Type	Erosion Hazard	
	Water	Wind
Gadsden clay <ul style="list-style-type: none"> deep, well drained soils on flood plains and low terraces 	Slight	Moderate
Glenbar silty clay loam <ul style="list-style-type: none"> deep, well drained soils on flood plains and low terraces 	Slight to Moderate	Moderate
Holtville clay <ul style="list-style-type: none"> deep, well drained soils on flood plains 	Slight	Moderate
Indio silt loam <ul style="list-style-type: none"> deep, well drained soils on flood plains, and alluvial fans 	Slight	Moderate
Rositas sand <ul style="list-style-type: none"> deep, somewhat excessively drained soils on terraces, alluvial fans and sand dunes 	Slight	High
Superstition sand <ul style="list-style-type: none"> deep, somewhat excessively drained soils on the old terrace of the Colorado River 	Slight	High

Source: USDA 1980.

3.2.1 Prime Farmland

Prime farmlands are protected under the Farmland Protection Policy Act (FPPA) of 1980 and 1995. Prime farmlands are defined as having the best combinations of physical and chemical properties to be able to produce fiber, animal feed, food, and are available for these uses (BOR 2000). The FPPA's purpose is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. Glenbar silty clay loam is designated as a prime farmland soil (CDC 1995). When irrigated, Holtville clay and Indio silt loam are also listed as prime farmland soils (CDC 1995). Additionally, all agricultural fields adjacent to the project area are irrigated and under cultivation.

3.3 BIOLOGICAL RESOURCES

There are four biotic provinces in Arizona (Dice 1943). The Sonoran biotic province encompasses the project area, which includes the northwestern parts of Santa Cruz, Pima, Maricopa, Yuma, and La Paz counties (Dice 1943). The Sonoran biotic province covers the desert region of southwestern Arizona and is characterized by extensive plains, from which isolated small mountains and buttes rise abruptly.

3.3.1 Vegetation Communities

Arizona has 3,370 species of flowering plants, ferns and fern allies, and 132 plant families (Kearney *et al.* 1979). The rich flora communities of Arizona can be defined on the basis of the interaction of geology, soils, climate, animals, and humans (Kearney *et al.* 1979). There are six major vegetation communities (formations) in Arizona; however, only one (*i.e.*, Desertscrub Formation) is located within the project area (Brown 1994).

3.3.1.1 Desertscrub Formation

The Desertscrub Formation is composed of four divisions (*i.e.*, Great Basin Desertscrub, Mohave Desertscrub, Chihuahuan Desertscrub, and Sonoran Desertscrub). The proposed project area is within the Sonoran Desertscrub division, which contains six subdivisions. The proposed project area is within the Lower Colorado subdivision (Brown 1994).

The Lower Colorado subdivision is dominated by creosotebush and its major associate, white bursage (*Ambrosia dumosa*), in the lowest elevations of the bursage-creosotebush flats (Brown 1994). The large expansive bursage-creosotebush flats can be interspersed between the small mountain ranges and lava fields. These flats are characterized by a lower diversity of plant species or communities than the Sonoran desertscrub division and are dominated by a scattered to dense community of woody shrubs. Dominant species in the bursage-creosotebush flats include creosotebush, white bursage, and triangle-leaf bursage (*Ambrosia deltoidea*) with scattered herbaceous and cacti species. Typical scattered cacti species include pencil cholla (*Opuntia arbuscula*), Engelmann's hedgehog cactus (*Echinocereus engelmannii*), and Arizona barrel cactus (*Ferocactus wislizenii*). Common weedy, herbaceous species include sixweeks grama (*Bouteloua barbata*), wooly plantain (*Plantago ovata*), and smallseed sandmat (*Chamaesyce polycarpa*) (Brown 1994). In many large areas, wooly plantain may be the dominant or only herbaceous species present.

During a field survey conducted February 19-20, 2004, two vegetation types were observed, agriculture and creosote/bursage communities. Within Phase II, which spans approximately 7 miles east of the San Luis POE, the project corridor supports a creosote/bursage community comprised primarily of creosotebush (*Larrea tridentata*), milkvetch (*Astragalus* spp.), bursage (*Ambrosia* spp.), fourwing saltbush (*Atriplex canescens*), grama grass (*Bouteloua* spp.), and wooly plantain. In Phases I and III, north and west of the San Luis POE and east of the Colorado

River, agricultural fields of purple and green lettuce (*Lactuca* spp.) and broccoli (*Brassica oleracea*) were observed. Along the levee, fourwing saltbush was observed in uncultivated areas.

3.3.2 Non-native Invasive Species

On February 3, 1999, President Clinton signed Executive Order 13112 dictating that each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law:

(1) identify such actions;

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations (National Invasive Species Council 2004).

The BLM, Yuma office provided GSRC a list of the agency's non-native invasive plant species (Appendix A). During the field investigation, GSRC ecologists and botanists searched for the invasive species in the project area. Table 3-2 presents those species observed during the field investigation and their location within the project area.

Table 3-2. Non-Native Invasive Plants Observed within the Project Area

Common Name	Latin Name	Location	Frequency
Prickly Russian thistle	<i>Salsola australis</i>	Scattered throughout	Infrequent
Asian mustard	<i>Brassic tournefortii</i>	Western portion of the project area within agricultural areas	Infrequent
Salt cedar	<i>Tamarix ramosissima</i>	Riparian zones along Colorado River and agricultural areas	Frequent

Source: GSRC 2004a

3.3.3 Wildlife

Wildlife observed during the biological surveys conducted February 19-20, 2004, included blacktail jackrabbit (*Lepus californicus*), Anna's hummingbird (*Calypste anna*), turkey vulture (*Cathartes aura*), house finch (*Carpodacus mexicanus*), and killdeer (*Charadrius vociferous*). Small animal tracks and burrows observed were evidence of the presence of both rodent species and desert dwelling lizards in the proposed project area. Most of these species are common to the areas adjacent to either side of the U.S.-Mexico border.

3.4 UNIQUE AND SENSITIVE AREAS

Southwestern Arizona has many unique and sensitive areas. Ongoing efforts by many government agencies, as well as private entities, have set aside areas for preservation. These areas are intended for use by the public in hopes of better understanding the myriad of natural systems exhibited in their natural state. Riparian (riverbank) areas, basin wetlands, scenic canyons, and vast wilderness represent these unique areas. The unique or sensitive areas that would potentially be affected by the proposed action are discussed below.

3.4.1 Yuma Desert Management Area

Established by the 1997 Flat-Tailed Horned Lizard Rangewide Management Strategy, the Yuma Desert Management Area (YDMA) serves as a tool to facilitate flat-tailed horned lizard conservation (Figure 3-3). Five such management areas were established to:

- Continue to secure and manage sufficient habitat to maintain self-sustaining flat-tailed horned lizard populations.
- Maintain a long-term stable or increasing population of flat-tailed horned lizards in all management areas.
- Continue to support research that promotes conservation of the species.

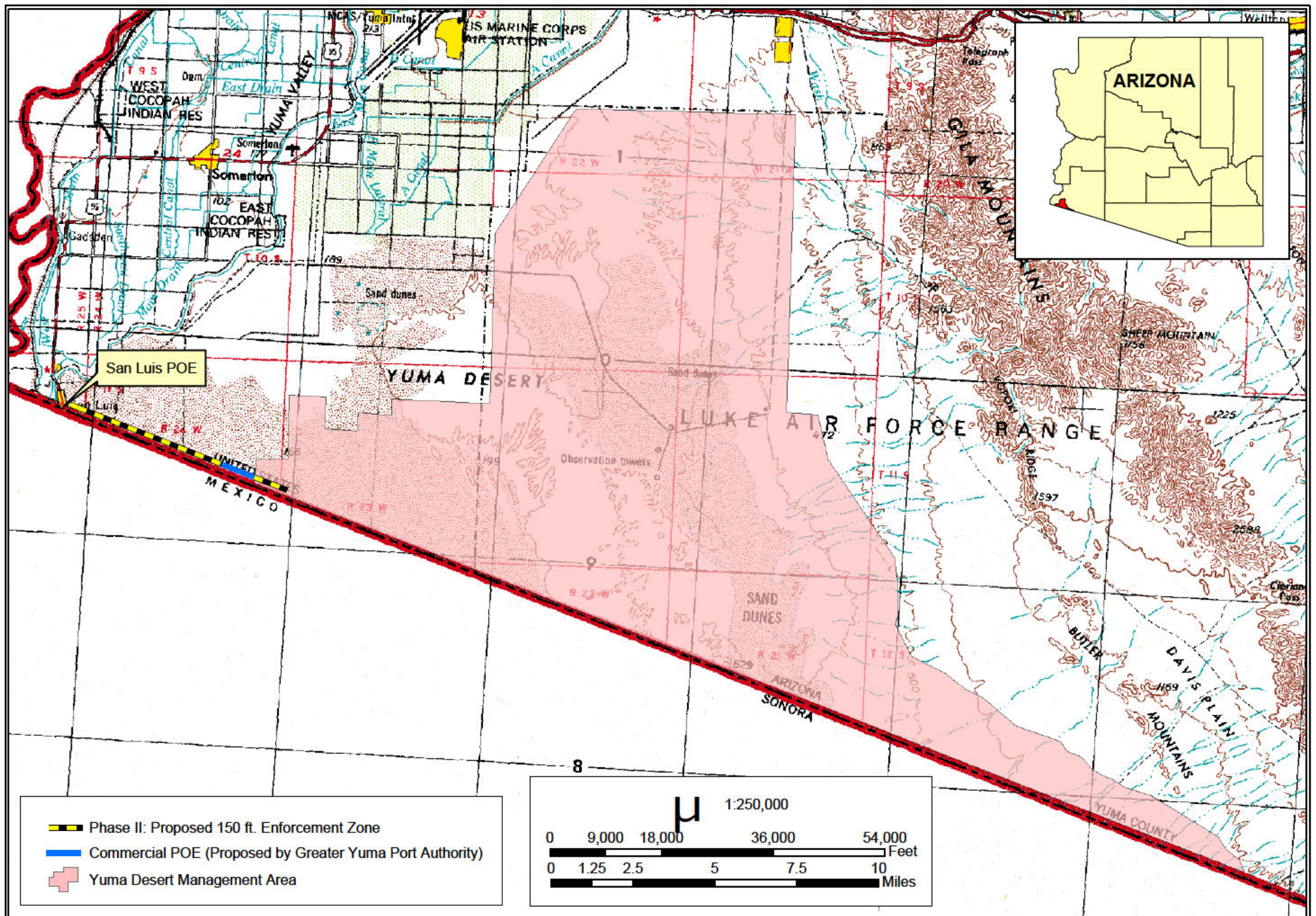


Figure 3-3: Yuma Desert Management Area

- Limit the loss of habitat and effects on the flat-tailed horned lizard populations through effective mitigation and compensation.
- Encourage and assist Mexico in developing and implementing a flat-tailed horned lizard conservation plan (Flat Tailed Horned Lizard Interagency Coordinating Committee [FTHLICC] 2003).

3.4.2 Cocopah Indian Reservation

Established in 1917, the Cocopah Indian Reservation (CIR) is located 5 miles north of San Luis, Arizona along the Colorado River and encompasses over approximately 6,000 acres. The CIR leases most of its lands to farmers, and is home to a land-based casino.

3.5 PROTECTED SPECIES AND CRITICAL HABITAT

The Endangered Species Act (ESA) [16 U.S.C. 1532 et seq.] of 1973, as amended, was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. All Federal agencies are required to implement protection programs for designated species and to use their authorities to further the purposes of the act. Responsibility for the identification of a threatened or endangered species and development of any potential recovery plans lies with the Secretary of the Interior and the Secretary of Commerce.

An endangered species is a species in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species are those, which have been formally submitted to Congress for official listing as threatened or endangered. Species may be considered endangered or threatened when any of the five following criteria occurs: (1) the current/imminent destruction, modification, or curtailment of their habitat or range; (2) overuse of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; and (5) other natural or human-induced factors affect continued existence.

In addition, the U.S. Fish and Wildlife Service (USFWS) has identified species that are candidates for listing as a result of identified threats to their continued existence. The candidate designation includes those species for which the USFWS has sufficient information on hand to support proposals to list as endangered or threatened under the ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.

3.5.1 Federal

The current list of Federally protected species maintained by the USFWS, Arizona Ecological Services was accessed to determine the Federally protected species potentially occurring in Yuma County (Appendix B) (USFWS 2004). Through coordination with the USFWS, it was determined that a total of seven Federally protected species have the potential to occur in Yuma County. Information pertaining to species identified by the USFWS is included in Table 3-3.

Table 3-3. Federally Listed Species Potentially Occurring within Yuma County, Arizona

Species Name	Federal Status	Preferred Habitat
Bald eagle <i>Haliaeetus leucocephalus</i>	Threatened	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey.
Cactus ferruginous pygmy-owl <i>Glaucidium brasilianum cactorum</i>	Endangered	Mature cottonwood/willow, mesquite bosques, and Sonoran desert scrub.
California brown pelican <i>Pelecanus occidentalis californicus</i>	Endangered	Coastal land and islands; species found around many Arizona lakes and rivers.
Sonoran desert pronghorn <i>Antilocarpa americana sonoriensis</i>	Endangered	Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations. Typically, bajades are used as fawning areas and sandy dune areas provide food seasonally. The subspecies also occurs in Mexico.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Endangered	Cottonwood/willow and tamarisk vegetation communities along rivers and streams.
Razorback sucker <i>Xyrauchen texanus</i>	Endangered	Riverine and lacustrine areas, generally not in fast moving water and may use backwaters.
Yuma clapper rail <i>Rallus longirostris yumanensis</i>	Endangered	Freshwater and brackish marshes.

Source: USFWS 2004.

Two Federally endangered species, southwestern willow flycatcher (*Empidonax traillii extimus*) and Yuma clapper rail (*Rallus longirostris yumasensis*), have the potential to occur along the Colorado River near Phase III. Although this area is within the Lower Colorado Recovery Unit for the southwestern willow flycatcher, the closest recorded flycatcher site to the proposed project area is located at the confluence of the Gila River with the Colorado River, approximately 20 miles north of the project corridor (USFWS 2002b). There are no known flycatcher nesting sites within the riparian area located adjacent to the project corridor.

The Yuma Station's AO overlaps portions of the Yuma clapper rail's historic range along the Lower Colorado River. However, the proposed project corridor does not overlap with any of the known Yuma clapper rail breeding areas. Breeding areas include Mittry Lake (Arizona), West Pond, Imperial National Wildlife Refuge, Bill Williams River, Topock Gorge and Topock Marsh on Havasu National Wildlife Refuge, Cibola National Wildlife Refuge, and Imperial Wildlife Area (Arizona Game and Fish Department [AGFD] 2001). The potential habitat for Yuma clapper rail adjacent to the proposed project corridor in Phase III is degraded because of the diversion of water from the Colorado River into concrete canals for agricultural and water supply. Very little water flows within the riparian area and the riparian area does not include backwater marsh habitat, which is preferred by the Yuma clapper rail.

3.5.2 State

The AGFD Natural Heritage Program maintains lists of Wildlife of Special Concern in Arizona (WSC). This list includes flora and fauna whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines (AGFD 2004a). These species are not necessarily the same as those protected by the Federal government under the ESA. A list of state protected species for Yuma County is included in Appendix B. WSC species known to occur within a 5 mile radius of the project area include the western burrowing owl (*Athene cunicularia hypugaea*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), southwestern willow flycatcher, Yuma clapper rail, Yuma hispid cotton rat (*Sigmodon hispidus eremicus*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), sand food (*Pholisoma sonora*), and flat-tailed horned lizard (*Phrynosoma mcallii* [FTHL]) (AGFD 2003 and AGFD 2004b).

The Arizona Department of Agriculture (ADA) maintains a list of protected plant species within Arizona. The 1999 Arizona Native Plant Law defined five categories of protection within the state. These include: Highly Safeguarded, no collection allowed; Salvage Restricted, collection only with permit; Export Restricted, transport out of state prohibited; Salvage Assessed, permit required to remove live trees; and Harvest Restricted, permit required to remove plant by-products (ADA 2003). A list of native plants protected by the ADA is included in Appendix B.

3.5.3 Critical Habitat

The ESA also calls for the conservation of what is termed Critical Habitat - the areas of land, water, and air space that an endangered species needs for survival. Critical habitat also includes such things as food, breeding sites, cover or shelter, and sufficient habitat area to provide for

normal population growth and behavior. One of the primary threats to many species is the destruction or modification of essential habitat by uncontrolled land and water development. There is no critical habitat within the project area.

3.5.4 Protected Species Surveys

The project corridor includes flat-tailed horned lizard (*Phrynosoma mcallii* [FTHL]) conservation habitat. The FTHL was proposed for listing under the ESA in November 1993, but was withdrawn in July 1997. The FTHL was again proposed for listing in December 2001 (USFWS 2001). The proposed listing was once again withdrawn in January 2003. Although the FTHL is not a Federally protected species, it is considered a WSC in Arizona. The WSC designation does not provide protection of the species, but the FTHL is protected from collection under Arizona Reptile and Amphibian Regulations (AGFD 2004). Commission Order 43 designates that there is no open season on FTHL collection (AGFD 2004). In 1997, cooperating Federal and state agencies developed a conservation agreement to conserve the FTHL by reducing threats to the species, stabilizing the specie's populations, and maintaining its ecosystem. The Flat-tailed Horned Lizard Interagency Coordinating Committee (FTHLICC) was developed as part of this conservation agreement. The Committee developed the Flat-tailed Horned Lizard Rangewide Management Strategy (FTHLICC 2003) to provide protection and management of the FTHL on cooperating agencies lands.

The easternmost 1-mile enforcement corridor in Phase II overlaps the YDMA. This area was surveyed during the February 2004 biological surveys. Biologists walked transects throughout the proposed 150-foot enforcement zone where the project corridor meets the westernmost section of the YDMA to look for FTHLs and signs of their presence in the area. The FTHL or evidence of their presence (*i.e.*, scat) were not observed during the surveys. However, the surveys conducted did not meet the protocol survey standards outlined in the Flat-tailed Horned Lizard Rangewide Management Strategy, Appendices 4-6 (FTHLICC 2003). Four FTHL were sighted during a September 1999 BOR survey of the proposed commercial POE site at Avenue E (as per Chris Bates personal communication 1999) (BOR 2000). Only a small portion of the project corridor was within the YDMA designated for FTHL but the project corridor may be considered suitable habitat.

The western burrowing owl is also a WSC. Although the WSC designation does not afford additional legal protection by Federal agencies, western burrowing owls are protected under the

Migratory Bird Treaty Act (16 U.S.C. § 703 *et seq.*). Western burrowing owls were observed throughout the project area and burrow locations were marked with a geographical positioning system (GPS) for future identification.

3.6 CULTURAL RESOURCES

The National Historic Preservation Act (NHPA) of 1966 establishes the Federal government's policy to provide leadership in the preservation of historic properties and to administer Federally owned or controlled historic properties in a spirit of stewardship. The NHPA established the Advisory Council on Historic Preservation (ACHP) to advocate full consideration of historic values in Federal decision-making; review Federal programs and policies to promote effectiveness, coordination, and consistency with national preservation policies; and recommend administrative and legislative improvements for protecting our nation's heritage with due recognition of other national needs and priorities. In addition, the NHPA also established the State Historic Preservation Officers (SHPO) to administer national historic preservation program on the state level and Tribal Historic Preservation Officer (THPO) on tribal lands, where appropriate. The NHPA also establishes the National Register of Historic Places (NRHP). The NRHP is the nation's official list of cultural resources worthy of preservation and protection. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The National Park Service administers the NRHP.

Section 106 of the NHPA requires the OBP to identify and assess the effects of its actions on cultural resources. The OBP must consult with appropriate state and local officials, Indian tribes, and members of the public and consider their views and concerns about historic preservation issues when making final project decisions. The historic preservation review process mandated by Section 106 is outlined in regulations issued by the ACHP. Revised regulations, "Protection of Historic Properties" (36 CFR Part 800), became effective January 11, 2001.

Several other important pieces of legislation include the Native American Graves Protection and Repatriation Act (NAGPRA), along with Executive Order (E.O.) 13007 and E.O. 13175. NAGPRA mandates the OBP to summarize, inventory, and repatriate cultural items in the possession of or control of the Federal agency to lineal descendants or to culturally affiliated Federally recognized Indian tribes. NAGPRA also requires that certain procedures be followed when there is an

intentional excavation of or an inadvertent discovery of cultural items. E.O. 13007 was issued on May 24, 1996 in order to facilitate the implementation of the American Indian Religious Freedom Act of 1978. It specifically charges Federal agencies to: (1) accommodate, to the extent practical, American Indian access to and use of sacred sites by religious practitioners; (2) avoid adversely affecting the physical integrity of sacred sites; and (3) to maintain the confidentiality of these sites. E.O. 13175 outlines the official U.S. government policy on consultation and coordination with American tribal governments. The order emphasizes formal recognition of the American Indian Tribes' status as...“domestic independent nations” that have entered into treaties with the U.S. guaranteeing their right to self-government. It stipulates that this consultation would be done on a “government to government basis.”

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, and any other physical evidence of human activities considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Cultural resources are typically divided into three major categories: archeological resources, architectural resources, and traditional cultural resources.

Archeological resources are locations where prehistoric or historic activity measurably altered the earth or produced deposits of physical remains (e.g., arrowheads, bottles). Architectural resources include standing buildings, dams, canals, bridges, and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for inclusion in the NRHP. However, more recent structures, such as Cold War era resources, may warrant protection if they manifest “exceptional significance” or the potential to gain significance in the future.

Traditional cultural resources are resources associated with cultural practices and beliefs of a living community that are rooted in its history and are important in maintaining the continuing cultural identity of the community. Traditional resources may include archeological resources, locations of historic events, sacred areas, sources of raw material used to produce tools and sacred objects, topographic features, traditional hunting or gathering areas, and native plants or animals.

Under Federal regulation, only significant cultural resources warrant consideration with regard to adverse impacts resulting from a Federal undertaking. Significant archeological, architectural,

and traditional resources include those that are eligible or recommended as eligible for inclusion in the NRHP. The significance of Native American and Euroamerican archeological resources is evaluated according to the criteria for eligibility to or inclusion to the NRHP as defined in 36 CFR 60.4 and in consultation with the SHPO. As established in the following criteria, the quality of significance is present in districts, sites, buildings, structures, and objects that: (a) are associated with events that have made a significant contribution to the broad patterns of history; (b) are associated with the lives of persons significant in the past; (c) embody the distinctive characteristics of a type, period, or method of construction; or represent the work of a master; or possess high artistic value or represent a significant and distinguishable entity whose components may lack individual distinction; (d) or have yielded, or may be likely to yield information important in prehistory or history.

3.6.1 The Section 106 Review Process

Federal agencies must determine whether their undertakings could affect cultural resources in order to initiate the Section 106 review process. If there is no potential to affect historic properties, then the Federal agency has no further Section 106 obligations. If there is a potential that either known or unknown historic properties could be affected, then the Federal agency must identify the appropriate SHPO and/or THPO to consult with during the evaluation process. In addition, the Federal agency should also plan to involve the public, and identify other potential consulting parties such as the appropriate Federally recognized tribes that may claim a cultural affinity to the area of potential effect (APE).

If it has been determined that the Federal agency's undertaking could affect known or potential cultural resources, it is necessary to identify all cultural resources within the APE. As a result, the Federal agency would conduct reviews of background information, consult with SHPO/THPO as well as others, seek information from knowledgeable parties, and conduct additional studies as necessary. Often these efforts would include a standing structures survey and archeological survey of the area in order to identify potential cultural resources that may be impacted. Cultural resources that are identified are evaluated against the National Park Service's published criteria outlined above in order to determine if they are eligible for inclusion on the NRHP. If the Federal agency finds that no potentially eligible or eligible cultural resources are present or affected it then provides documentation to the SHPO/THPO and, barring any objections, proceeds with its undertaking. If potentially eligible or eligible cultural resources are present then the Federal agency would proceed to assess possible adverse impacts

The Federal agency, in consultation with the SHPO/THPO, makes an assessment of potential adverse effects on the identified cultural resources based on the criteria found in the ACHP's regulations. Potential adverse impacts may include but are not limited to:

- physical destruction or damage
- alteration inconsistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (see www2.cr.nps.gov/tps/secstan1.htm for more information)
- relocation of the property
- change in the character of the property's use or setting
- introduction of incompatible visual, atmospheric, or audible elements
- neglect and deterioration
- transfer, lease, or sale out of Federal control without adequate preservation restrictions

If the SHPO and/or THPO agree that there will be no adverse effect, the Federal agency may proceed with the undertaking and any agreed upon conditions. If it is determined that there is an adverse effect, the Federal agency must initiate consultation to seek ways to avoid, minimize, or mitigate the adverse effects.

The Federal agency would consult with the appropriate SHPO and/or THPO and others, who may include Indian tribes, local governments, permit or license applicants, and members of the public to resolve adverse effects to cultural resources. The ACHP may also participate in the consultation process. The consultation process usually results in a Memorandum of Agreement (MOA), which outlines the agreed-upon measures that the Federal agency would take to avoid, minimize, or mitigate the adverse effects. If the MOA is executed, the Federal agency would proceed with its undertaking under the terms of the MOA and the Section 106 process is complete.

3.6.2 Cultural Overview

The archaeology of southern Arizona is relatively complex considering the various geographic and related cultural features. For purposes of clarity, the following text will present a broad overview of southern Arizona prehistory before outlining the various investigations that are important to the understanding of the study area. The cultural chronology of southern Arizona is composed of five periods, namely:

Paleoindian	10,000 to 7,500 B.C
Archaic	7,500 to 400 BC
Formative	AD 100 to 1539
Historic	AD 1539 to Present

These periods are commonly subdivided into smaller temporal phases based on particular characteristics of the artifact assemblages. Three archeological regions were encountered within southern Arizona. The prehistoric periods and corresponding phases are defined by the presence of particular diagnostic artifacts such as projectile points, certain types of pottery, and occasionally, particular site locations. For the Historic period, documentary information more often is used to distinguish certain phases; nevertheless, particular artifacts also can be used to recognize certain historic affiliations. Numerous sites have been recorded throughout the border region, many of which have subsequently been listed on the NRHP. Literally hundreds of other sites and structures in southern Arizona are considered potentially eligible for NRHP-listing.

The Paleoindian people were hunters and gatherers who exploited the late Pleistocene environment of North America, with its more diverse fauna featuring larger, and now extinct, mammal species. The Archaic people lived much the same way as the Paleoindians had, but in essentially modern, post-Pleistocene desert environment. Evidence from Archaic archeological sites suggests a greater reliance on foraging and the processing of gathered plants. Formative refers to prehistoric peoples who made pottery and farmed. At a minimum it implies a certain quality of sedentism as well. The final unit, Historic, covers the time for which we have written records, in addition to archeological evidence, beginning at the time of Spanish penetration of the American southwest in the 15th century AD (DHS 2004).

3.6.3 Previous Investigations

A records search was conducted to identify all previously completed cultural resource projects and previously recorded archeological sites and historic properties that occur within one mile of the proposed project corridor. The Arizona State Museum (ASM) AZSITE database, the Arizona State Historic Preservation Office (SHPO), the BLM, and Northland Research Inc.'s archival materials were consulted during the records search. Eleven known archeological projects have been conducted in the vicinity of the project area. Previous investigations have resulted in the identification of 16 sites within a 1-mile radius of the project area (Northland 2004).

Several historical sites were recorded as part of an Arizona Department of Transportation (ADOT) sponsored survey of U.S. Highway 95. These sites represent historic structures, foundations, and other features associated with the town of Gadsden, which is located east of Phase III (Northland 2004). Several historic sites were recorded near the Phase I project area

as part of a BOR inventory. Several of these sites, (b)(3) (b)(3) are located within or near the project corridor. The sites consist of (b)(3) (b)(3) All five sites are recommended as eligible for placement on the NRHP; however, these sites are currently in use and are surrounded by modern developments (Northland 2004).

3.6.4 Current Investigations

Cultural resources surveys were conducted throughout the approximately 13-mile project area in March 2004 in order to identify any cultural resources that would be impacted by the light construction. The areas were traversed utilizing transects spaced no more than 20 meters apart. The ground surface was examined for any evidence of cultural materials. All cultural remains were recorded and evaluated for their inclusion on the NRHP. One site was identified and recorded (b)(3) during the 2004 surveys. Three isolated occurrences were also observed. The recorded site consists of a localized scatter of historical debris. The one site and the three isolates were not found to be significant and, as such, are not considered eligible for listing into the NRHP (Northland 2004).

3.7 AIR QUALITY

3.7.1 Applicable Air Quality Statutes

The United States Environmental Protection Agency (USEPA) is responsible for enforcing the Clean Air Act (CAA) of 1970 and the 1977 and 1990 Clean Air Act Amendments (CAAA). The CAAA established National Ambient Air Quality Standards (NAAQS), to classify areas as to their attainment status relative to the NAAQS, to develop schedules and strategies to meet the NAAQS, and to regulate emissions of criteria pollutants and air toxics to protect the public health and welfare. Each state is allowed to set air quality standards and other regulations provided that the state's standards are at least as stringent as Federal standards.

3.7.2 Background in Air Quality Management

The USEPA established NAAQS, for specific pollutants determined to be of concern with respect to the health and welfare of the general public. The USEPA defines ambient air quality in 40 CFR 50 as "that portion of the atmosphere, external to buildings, to which the general public has access." Ambient air quality standards are intended to protect public health and welfare and are classified as either "primary" or "secondary" standards. Primary standards define levels of air

quality necessary to protect the public health. National secondary ambient air quality standards define levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. The major pollutants of concern are carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), suspended particulate matter of less than ten microns in size (PM₁₀), and lead (Pb). NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. Short-term standards (1-, 8-, and 24-hour averaging periods) are established for pollutants contributing to acute health effects, while long-term standards (annual averages) are established for pollutants contributing to long-term health effects. The NAAQS are included in Table 3-4. Areas that do not meet these standards are called non-attainment areas; areas that meet both primary and secondary standards are known as attainment areas. The CAAA of 1990 established new deadlines for the achievement of NAAQS, depending on the severity of non-attainment.

Table 3-4. National Ambient Air Quality Standards

POLLUTANT	STANDARD VALUE*	STANDARD TYPE
Carbon Monoxide (CO)		
8-hour average	9ppm (10mg/m ³)	P
1-hour average	35ppm (40mg/m ³)	P
Nitrogen Dioxide (NO₂)		
Annual arithmetic mean	0.053ppm (100µg/m ³)	P and S
Ozone (O₃)		
1-hour average	0.12ppm (235µg/m ³)	P and S
8-hour average	0.08ppm (157µg/m ³)	P and S
Lead (Pb)		
Quarterly average	1.5µg/m ³	P and S
Particulate<10 micrometers (PM-10)		
Annual arithmetic mean	50µg/m ³	P and S
24-hour average	150µg/m ³	P and S
Particulate<2.5 micrometers (PM-2.5)		
Annual arithmetic mean	15µg/m ³	P and S
24-hour Average	65µg/m ³	P and S
Sulfur Dioxide (SO₂)		
Annual arithmetic mean	0.03ppm (80µg/m ³)	P
24-hour average	0.14ppm (365µg/m ³)	P
3-hour average	0.50ppm (1300µg/m ³)	S

Source: USEPA 2001.

Legend: P = Primary

S = Secondary

ppm = parts per million

mg/m³ = milligrams per cubic meter

µg/m³ = micrograms per cubic meter

*Parenthetical value is an approximately equivalent concentration.

The USEPA requires each state to develop a State Implementation Plan (SIP). This plan outlines how the CAA provisions would be implemented within the state to obtain the NAAQS. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain compliance with the NAAQS. To provide consistency in different state programs and ensure that a state program complies with the requirements of the CAA and USEPA, approval of the SIP must be made by the USEPA. The purpose of the SIP is to provide a strategy that would result in the attainment and maintenance of the NAAQS and to demonstrate that progress is being made in attaining the standards in each non-attainment area.

The Arizona Department of Environmental Quality (ADEQ) is the state agency responsible for “controlling present and future sources of air pollution” (ADEQ 2003b). Yuma County is currently in violation of the NAAQS for PM₁₀ (USEPA 2004a). In the late 1980s, identified emission sources were agricultural tilling and burning, paved and unpaved road dust, and disturbed areas (ADEQ 2003b). ADEQ developed a maintenance plan and re-designation request for the Yuma area in 2001. Federal regulations require that, before the maintenance plan is submitted to USEPA, the three most recent years of monitoring data be complete and include no violations of the 24-hour or annual standard. Data from 2002 through 2004 would be used for the required three years of clean data to submit the Yuma PM₁₀ Maintenance Plan and Re-designation Request to USEPA in 2005 (ADEQ 2003b).

Portable lighting systems that are powered by diesel generators are currently in use within the project area. Generators are in use from dusk until dawn, each night the portable lighting systems are deployed. Hydrocarbon emissions from these generators contribute to the current air quality condition of the region. Illegal traffic and consequent OBP enforcement actions off-road and on unpaved roads contribute to the PM₁₀ emissions in Yuma County.

3.8 WATER RESOURCES

3.8.1 Surface Water

The project area is within the Lower Colorado and the Yuma Desert watersheds. The U.S. Geological Survey (USGS) Topographical maps show no natural drains in the project area other than the Colorado River. Man-made canals are common near the Colorado River, as water is diverted from the river for use in agricultural irrigation.

The Lower Colorado watershed covers a small portion of the project area. The Colorado River and lowlands immediately adjacent are included in this watershed. Water quality in the Lower Colorado River is classified as Category 2, which means that at least one of the designated uses of the river has been determined as in attainment and others are assessed as inconclusive or threatened (ADEQ 2003a). Overall, the watershed is classified as a Category 1 watershed (USEPA 2004b). Category 1 designation is assigned when all designated uses are assessed as in attainment.

The Yuma Desert watershed covers approximately 750 square miles. There are no perennial streams in the watershed.

During the biological survey, many non-tidal drainage and irrigation ditches were observed. These ditches usually have concrete bottoms and sides and gates to control the amount of water flow. These ditches varied in width from 4 to 20 feet. Other than the Colorado River, no other natural surface water features were observed.

3.8.2 Groundwater

The analysis area is within the Yuma Groundwater basin. Groundwater occurs in basin fill deposits, which are divided into two major subdivisions based on water-bearing characteristics. The first subdivision forms the upper, principal water-producing part of the aquifer and consists of recent Colorado and Gila River alluvial deposits (Arizona Department of Water Resources [ADWR] 2004a). The second subdivision includes the lower part of the basin, which is comprised of the Bouse Formation, marine sedimentary rocks, volcanic rocks, and nonmarine sedimentary rocks. The highly mineralized and deep units of the southern region of the Yuma basin are not considered to be significant sources of groundwater (Olmsted et al. 1973). Groundwater recharge is from the Colorado and Gila Rivers and infiltration of irrigation water. Only minor amounts are contributed by precipitation and local runoff (Olmsted et al. 1973).

The Yuma basin covers approximately 750 square miles of southwestern Arizona. The Gila and Laguna Mountains bound it to the east, the Colorado and Gila Rivers to the west and north, and the U.S.-Mexico border to the south (ADWR 2004).

Water from the Colorado River, diverted into the Yuma Basin, is used for both irrigation and municipal uses. Most of the water pumped into the basin is then withdrawn by drainage wells to keep the area from being waterlogged (ADEQ 2001).

Water quality in the Yuma Groundwater basin generally supports drinking water uses. Groundwater in the basin is chemically similar to Colorado River water (Olmsted et al. 1973). With annual precipitation in the area of less than 3 inches (ADEQ 2001), the Yuma Groundwater basin is composed almost completely of recharged Colorado River water.

3.8.3 Wetlands and Other Waters of United States

Section 404 of the Clean Water Act (CWA) of 1977 (P.L. 95-217) authorizes the Secretary of the Army, acting through the USACE, to issue permits for the discharge of dredged or fill material into Waters of the U.S. (WUS), including wetlands. WUS (Section 328.3[2] of the CWA), which are those waters used in interstate or foreign commerce, subject to ebb and flow of tide, and all interstate waters including interstate wetlands. WUS are further defined and may include waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, or impoundments of waters, tributaries of waters, and territorial seas. Jurisdictional boundaries for WUS are defined in the field as the ordinary high water marks (OHWM). It is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

On January 9, 2001, the U.S. Supreme Court issued a decision in the case of *Solid Waste Agency Of Northern Cook County (SWANCC) v. United States Army Corps of Engineers*. The court found that the USACE was over-stepping its regulatory authority under the CWA in its use of the Migratory Bird Rule to take jurisdiction over isolated, intrastate, and non-navigable water. Therefore, all waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds that could affect interstate commerce solely by virtue of their use as habitat by migratory birds are no longer considered WUS.

Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 1987).

Activities that result in the dredging and/or filling of jurisdictional wetlands are regulated under Section 404 of the CWA. The USACE has established Nationwide Permits (NWP) to efficiently authorize common activities, which do not significantly impact WUS, including wetlands. The NWP were modified and reissued by the USACE in the *Federal Register* on January 15, 2002, with an effective date of March 18, 2002. All NWP have an expiration date of March 19, 2007. The USACE has the responsibility to authorize permitting under a NWP, or to require an Individual Permit.

The only WUS in the project corridor is the Colorado River. The riparian areas adjacent to the river are wetlands. During the biological survey many non-tidal drainage and irrigation ditches were observed. These ditches usually have concrete bottoms and sides and gates to control the amount of water flow. Non-tidal drainage and irrigation ditches excavated on dry land are usually not under the jurisdiction of the USACE or USEPA.

According to panel 0400990975C of the Federal Emergency Management Agency (FEMA) flood plain map, the 100-year flood zone border is the road that runs atop the Yuma Valley Levee bordering the Welton-Mohawk Bypass Drain (see Figure 2-3). All lands between the river and the levee are within the 100-year flood plain. The proposed infrastructure would not be constructed in the floodplain. Structures near the floodplain would not impede flow during the event of a flood. All construction activities within or near the floodplain would have to be coordinated with the Floodplain Manager for the area FEMA office.

3.9 SOCIOECONOMICS

3.9.1 Population

The region of influence (ROI) for the Preferred Action is defined as Yuma County, Arizona, which is part of the Yuma Metropolitan Statistical Area (MSA). The 2000 population of Yuma County was 160,026, which ranked 5th in the state of Arizona (U.S. Census Bureau 2003; Bureau of Economic Analysis [BEA] 2003). This is an increase of 49.7 percent over the revised 1990 census population of 106,895. The racial mix of Yuma County is mainly comprised of Caucasians

(68 percent), followed by people claiming to be some race other than Caucasian, African American, Native American, Asian, Native Hawaiian, or other Pacific Islander (23 percent), and people claiming to be two or more races (three percent). The remaining 6 percent is split between African Americans, Native Americans, Asians, and Native Hawaiians or other Pacific Islanders. Half of the total 2000 population claim to be of Hispanic origin (U.S. Census Bureau 2003).

The 2002 population estimate for Yuma County is 167,407, which ranked 5^h in the state. Racial breakdowns of the estimated 2002 population of Yuma County were not available at the time of this report.

3.9.2 Employment, Poverty Levels, and Income

The total number of jobs in Yuma County in 2001 was 70,598, an increase of 29 percent over the 1991 number of jobs of 53,905 (BEA 2003). Number of jobs broken down by industry was not available for 2001. The 2001 average annual unemployment rate for Yuma County was 24.3 percent. This is significantly larger than the 2001 annual average unemployment rate for the state of Arizona of 4.7 percent (Arizona Department of Economic Security [ADES] 2000). The 2003 average annual unemployment rate for Yuma County was 25.6 percent, which is also significantly higher than the 2003 average annual unemployment rate of 5.9 percent for the state of Arizona (ADES 2003).

The BEA defines personal income as the income that is received by persons from all sources. It is calculated as the sum of wage and salary disbursements, supplements to wages and salaries, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and personal current transfer receipts, less contributions for government social insurance. Per Capita Personal Income (PCPI) is calculated as the personal income of the residents of a given area divided by the resident population of that same area using the Census Bureau's annual midyear population estimates. Total Personal Income (TPI) of an area is the income that is received by, or on behalf of, all the individuals who live in that area.

The 2001 annual TPI for the ROI was about \$2.8 million. The TPI in Yuma County ranked 6th in the state of Arizona and accounted for 2 percent of the state total (BEA 2003). The 1991 TPI for Yuma County was \$1.5 million, which ranked 4^h in the state. Over the past 10 years, the average

annual growth rate of TPI was 5.7 percent. This is lower than the annual growth rate for the state of 7.6 percent and higher than that for the nation of 5.5 percent. PCPI was \$16,839 in 2001. This PCPI ranked 11^h in the state and accounted for 65 percent of the state average and 55 percent of the national average. The 1991 PCPI was \$14,203, which ranked 9th in the state. The average annual growth rate of PCPI over the past 10 years was 1.7 percent, as compared to the state's growth rate of 4.0 percent and the national growth rate of 4.3 percent (BEA 2003). The estimated number of people of all ages in poverty was 33,890. This represented 21.4 percent of the county, which is higher than the estimated 12.5 percent of the state population that lives in poverty (U.S. Census Bureau 2003).

3.9.3 Environmental Justice

Executive Order (E.O.) 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations) was signed in February 1994. This order was intended to direct Federal agencies "...to make achieving environmental justice part of its mission by identifying and addressing... disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the [U.S.]..." To comply with the E.O., minority and poverty status in the vicinity of the project was examined to determine if any minority and/or low-income communities would potentially be disproportionately affected by implementation of the Preferred Action and other alternatives. Both low-income and minority populations are prevalent within the ROI.

3.9.4 Protection of Children

E.O. 13045 requires each Federal Agency "to identify and assess environmental health risks and safety risks that may disproportionately affect children; and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." This E.O. was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults.

3.10 NOISE

Noise is generally described as unwanted sound, which can be based either on objective effects (hearing loss, damage to structures, *etc.*) or subjective judgments (community annoyance). Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the

decibel scale is referred to as a sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Noise levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise metric recommended by the USEPA (USEPA 1974) and has been adopted by most Federal agencies.

Throughout this analysis, all noise levels are expressed in dBA. Several examples of noise pressure levels in dBA are listed in Table 3-5. A DNL of 65 dB is that most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities like construction. Areas exposed to DNL above 65 dBA are generally not considered suitable for residential use. A DNL of 55 dBA was identified by USEPA as a level below, which there are effectively no adverse impacts (USEPA 1974).

Table 3-5. A-Weighted (dBA) Sound Levels of Typical Noise Environments

dBA	Overall Level	Noise Environment
120	Uncomfortably Loud (32 times as loud as 70 dBA)	Military jet takeoff at 50 ft
100	Very loud (8 times as loud as 70 dBA)	Jet flyover at 1,000 ft
90	Very Loud	Heavy-duty truck, average traffic
80	Loud (2 times as loud as 70 dBA)	Propeller plane flyover at 1,000 ft Diesel truck 40 mph at 50 ft
70	Moderately loud	Freeway at 50ft from pavement edge Vacuum cleaner (indoor)
65	Moderately loud	Gas powered generator
60	Relatively quiet (1/2 as loud as 70 dBA)	Air condition unit at 10 ft Dishwasher at 10 ft (in door)
50	Quiet (1/4 as loud as 70 dBA)	Large transformers Small private office (in door)
40	Very quiet (1/8 as loud as 70 dBA)	Bird calls Lowest limit of urban ambient sound
10	Extremely quiet (1/64 as loud as 70 dBA)	Just audible
0	Threshold of hearing	

Source: Wyle Research Corporation 1992.

Noise levels surrounding the proposed project location are variable depending on the time of day and climatic conditions. The OBP currently uses diesel generators to power the portable lights to

illuminate the border area. As indicated in Table 3-4, portable generators generate a noise level of approximately 65 dB during the nighttime. Attenuation to 55 dB occurs at 15 feet depending on climatic conditions, topography, vegetation, and man-made barriers (Generac Power Systems, Inc. 2004).

3.11 AESTHETICS

Aesthetic resources consist of the natural and man-made landscape features that appear indigenous to the area and give a particular environment its visual characteristics. Two populated areas occur within the project boundary, the City of San Luis and the Town of Gadsden. The remaining sections of the project area are located either in agricultural areas or remote sections of the Yuma Desert along the international border.

The OBP currently operates portable lights in Phases I and II of the project area. Diesel generators are used as the power source for these lights. Illumination from the lights is limited to 200 feet from the light source, mostly in a southerly direction. The lights have shields placed over the lamps to reduce or eliminate backlighting.

Yuma County Zoning Ordinance § 1109 outlines the Outdoor Lighting Regulations. The purpose of the regulations is to create standards for outdoor lighting, which do not conflict with the reasonable use and enjoyment of property within Yuma County and with astronomical observations. The intention of this ordinance is to encourage the conservation of energy while increasing nighttime safety, utility, security and productivity, through regulation of the types, construction, installation and use of outdoor electrically powered illuminating devices, lighting practices, and systems (Yuma County Department of Development Services [YCDDS] 2003). This “Black Sky” regulation in subsection 1109.04(c) of the ordinance dictates that outdoor lights installed on and in connection with State and Federal facilities land owners or operated by the Federal or state governments are exempt from all requirements of this regulation. Voluntary compliance is suggested (YCDDS 2003).

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SECTION 4.0
ENVIRONMENTAL CONSEQUENCES

4.0 ENVIRONMENTAL CONSEQUENCES

This section of the EA addresses potential impacts to the affected environment within the project area for all four alternatives outlined in Section 2 of this document. An impact (consequence or effect) is defined as a modification to the human or natural environment that would result from the implementation of an action. The impacts can be either beneficial or adverse and can be either directly related to the action or indirectly caused by the action. The effects can be temporary (short-term), long lasting (long-term) or permanent. For purposes of this EA, temporary effects are defined as those lasting for the duration of the construction/implementation period. Long-term impacts are defined as those that would last five years subsequent to completion of construction. Permanent impacts are those that are anticipated to last beyond five years.

Impacts can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. The significance of the impacts presented in this EA is based upon existing regulatory standards, scientific and environmental knowledge, and best professional opinions. Significant impacts are those effects that would result in substantial changes to the environment (as defined by 40 CFR 1500-08) and should receive the greatest attention in the decision making process. The following discussions describe and, where possible, quantify the potential effects of each alternative on the resources within or near the project corridor. All impacts described below are considered to be adverse unless stated otherwise. Table 4-1 provides a summary of impacts (in acres) of each project component and for each action alternative.

Table 4-1. Summary of Impacts (Acres) of Project Components by Alternative

Project Component	Alternative 1: Preferred Action	Alternative 2: Lights Only	Alternative 3: Lights and All-Weather Road
Permanent Stadium Style Lighting	0.7	0.7	0.7
Maintenance Road	19	19 ¹	-
All-weather Road	33	-	33
Fencing	1.5	-	-
Drag Road	-	-	9
Clear Area	109	-	
Total Acres Impacted by Alternative (Approximate)	147 ²	20	43

Source: GSRC 2004b

¹ Temporary impacts

² All project components for Alternative 1 would be constructed within the footprint of the enforcement zone.

4.1 LAND USE

4.1.1 Alternative 1: Preferred Action

Under the implementation of this alternative, 76 acres of land that is currently classified as being undeveloped (bare ground and agriculture land), conservation, or recreation would be permanently converted from its current land use to enforcement zone for the purpose of construction of the OBP's border infrastructure system. These direct impacts would be localized and are not considered significant impacts due to the vast amount of similar lands surrounding the project corridor and because portions of the project corridor are currently degraded immensely. The preferred action would have no impact on compliance with the Arizona Standards for Rangeland Health.

Alternative 1 would directly impact approximately 1.5 acres (included as part of the 163 acres previously mentioned) of lands designated for recreation. This acreage would be permanently removed from a recreational designation and converted to enforcement zone. This impact would occur as a result of obtaining the additional 90 feet north of the Roosevelt Easement along the entire southern boundary (approximately 669 feet) of Friendship Park in the City of San Luis for the purpose of constructing the 150-foot enforcement zone. The BLM has additional lands immediately adjacent to the west boundary of Friendship Park that could be acquired by the City of San Luis to replace the lost acreage. Therefore, impacts to Friendship Park are not considered significant because there would be no net loss of acreage at the park.

Indirect impacts would occur outside of the project corridor as IEs attempt to circumvent the proposed infrastructure. However, these impacts are non-quantifiable at this time because IE patterns and migration routes are completely out of OBP control. In addition, indirect beneficial impacts are expected as a result of anticipated decreased illegal traffic within the project corridor. Decreasing illegal traffic would protect sensitive and wildlife management areas by reducing soil damage, vegetation damage, and degradation of habitat.

4.1.2 Alternative 2: Lights Only

With the implementation of Alternative 2 land use would not be significantly impacted within the region. The total footprint of the stadium style lighting structures would be 0.7 acre. Temporary impacts cover the construction and periodic use of the maintenance roads near the light poles (approximately 19 acres). Direct impacts to Friendship Park would be similar but less than those

described in Section 4.1.1 because the entire additional 90 feet would not be required under this alternative. Indirect beneficial and adverse impacts on land use would be similar but less than those described in Section 4.1.1. Enforcement actions would not be restricted to the 150-foot enforcement corridor under this alternative. This alternative would result in no impacts on compliance with the Arizona Standards for Rangeland Health.

4.1.3 Alternative 3: Lights and All-weather Road

Under this alternative, the direct permanent impacts to land use would be the footprints of the all-weather road, drag road, and the stadium style lighting structures. That is, a total of approximately 43 acres of land use would be permanently altered from undeveloped, conservation areas, and recreation use to law enforcement zone. Direct impacts to Friendship Park would be similar to those described in Section 4.1.1. Indirect beneficial and adverse impacts on land use would be similar but less than those described in Section 4.1.1. No impacts on compliance with the Arizona Standards for Rangeland Health would occur under this alternative.

4.1.4 Alternative 4: No Action

The No Action Alternative would not change the land use in the project area. BLM managed lands would remain in compliance with the Arizona Standards for Rangeland Health. Illegal traffic would continue to adversely affect land use in proximity to the border. Businesses and neighborhoods would continue to be targeted by IEs for concealment opportunities. Special use areas (*i.e.*, sensitive and unique areas, cultural/historical areas, and wildlife management areas) would continue to be degraded by illegal traffic.

4.2 SOILS AND PRIME FARMLAND

4.2.1 Alternative 1: Preferred Action

The implementation of the Preferred Action would cause direct impacts to soils within the project area; however, these soils have been heavily degraded due to vehicular and IE traffic. Under the Preferred Action, a total of 163 acres of soils would be altered (Table 4-2). In Phase I, up to 37 acres of Superstition and Rositas sandy soils would be directly impacted and approximately 110 acres of Superstition and Rositas sandy soils would be impacted in Phase II. Less than 1 acre of Holtville clay, Glenbar silty clay loam, Gadsden clay, and Indio silt loam soils would be impacted in Phase III. Holtville, Glenbar, and Indio soils are considered prime farmland soils. The Preferred Action would not directly impact no lands presently being farmed. Temporary potential impacts

(i.e., erosion) to soils during construction and installation of proposed infrastructure would be minimized with the use of silt fences. As a result of this alternative, the volume of illegal traffic would decrease and, therefore, would cause a long-term indirect beneficial impacts to soils. Also, the Preferred Action would include the elimination of the risk of petroleum, oils and lubricant (POL) spills because existing portable lights and associated generators would be removed.

Table 4-2. Potential Soil Impacts (Acres) by Infrastructure Type in Phases I, II, and III, within 150-foot Enforcement Zone

Infrastructure Type	Phase 1 2 mile corridor Impacts	Phase 2 7 mile corridor Impacts	Phase 3 3 mile corridor Impacts
Maintenance Road	4.8	14.5	-
All-weather Patrol Road	7.3	21.8	-
Drag Road	1.9	6.7	-
Stadium Style Lights <ul style="list-style-type: none"> • 41ft² /light • 100-300 ft apart 	0.2	0.3	0.2
Fencing <ul style="list-style-type: none"> • Secondary (new) • Primary Extension 	0.2	1.2	-
Total Impact of Infrastructure Within Enforcement Zone	14.4	44.5	0.2
Total Impact of 150-foot Enforcement Zone: 163 acres	37	110	0.2

Source: GSRC 2004

4.2.2 Alternative 2: Lights Only

Permanent impacts to soils under this alternative would be limited to the soils disturbed during the construction of the stadium style lighting structures (i.e., 0.7 acre). Temporary impacts would occur due to the construction and periodic use of the maintenance road near the light poles. Approximately 19.3 acres of Holtville Clay (prime farmland soil), Superstition and Rositas sandy soils, Glenbar silty clay loam (prime farmland soil), Gadsden clay, and Indio silt loam (prime farmland soil) soils would be temporarily impacted. Lands presently being farmed would not be directly impacted under this alternative. Indirect beneficial impacts on soils would be similar to those described in Section 4.2.1. Indirect adverse effects to soils would occur in adjacent areas where the border infrastructure proposed under this alternative is not employed, as IEs circumvent the improved areas to avoid detection.

4.2.3 Alternative 3: Lights and All-weather Road

Permanent impacts to soils under this alternative would be the footprints of the all-weather road, drag road, and the stadium style lighting structures. Approximately 41 acres of Holtville Clay (prime farmland soil, when irrigated), Superstition and Rositas sandy soils, Glenbar silty clay loam (prime farmland soil), Gadsden clay, and Indio silt loam (prime farmland soil) soils would be permanently impacted. Alternative 3 would not directly impact any lands presently being farmed. Indirect beneficial and adverse impacts on soils would be similar to those described in Section 4.2.1.

4.2.4 Alternative 4: No Action

No ground disturbing activities would be necessary as a result of this alternative. Therefore, the No Action Alternative would have no direct impacts, either beneficial or adverse, on the soils within the project area. However, the OBP would not be as effective in detecting and apprehending IEs, and illegal foot and vehicular traffic would continue at its current level or increase, potentially disturbing additional soils in the area.

4.3 BIOLOGICAL RESOURCES

4.3.1 Vegetation Communities

4.3.1.1 Alternative 1: Preferred Action

Implementation of the Preferred Action would result in approximately 76 acres of permanent impacts to the bursage-creosotebush plant community in the project area east and west of the San Luis POE. Vegetation would be cleared along the border and stadium style lighting would be installed to increase visibility and security. Although 76 acres of vegetation would be cleared, due to the surrounding plant communities being similar and the vastness of these communities, no significant impacts to vegetation within the study corridor would occur. Existing agricultural areas along the Colorado River have been previously disturbed due to construction of irrigation canals, and naturally occurring plant communities do not exist in these areas. Agricultural fields would not be directly impacted by construction projects, because the light standards would not be sited within the fields. By illuminating some portions of agriculture fields within the project corridor direct impacts would occur that include altered photoperiods, which may cause problems for these crops (Demers and Gosselin 1999). Demers and Gosselin (1999) found that an altered photoperiod of up to 24 hours of light could cause less production, loss or discoloration of leaves, or blistering of leaves in vegetables. Lights near riparian areas would be fixed with shields to

prevent light spillage into these areas, thus, no significant impacts to vegetation within those riparian areas would occur. However, reduced IE traffic through riparian vegetation along the Colorado River would result in an indirect beneficial impact under the Preferred Action Alternative.

Short-term indirect effects to adjacent vegetation would occur during construction of the stadium style lights and border infrastructure due to fugitive dust settling on leaves, thus reducing photosynthesis and respiration. The magnitude of this effect would depend upon several biotic and abiotic variables including the speed and type of construction vehicles, climatic conditions, success of wetting measures during construction, and the general health of the vegetation. However, upon completion, the OBP operations would be expected to generate less fugitive dust as a result of the all-weather road.

4.3.1.2 Alternative 2: Lights Only

Implementation of Alternative 2 would permanently impact approximately 0.7 acres of the bursage-creosotebush plant community found in the project area. These impacts would not be significant due to the limited amount of vegetation removed and the vastness of the similar surrounding vegetation communities. The potential beneficial impacts, under this alternative, are slightly less than those of the Preferred Action Alternative. Without the additional infrastructure (improved roads and secondary fencing), IE apprehension would not be as close to the border as the Preferred Action Alternative. Apprehension at a point closer to the border protects more vegetation from being trampled by illegal foot and vehicle traffic. However, indirect adverse effects to vegetation could occur in other areas where the infrastructure proposed in this alternative is not employed, as IEs attempt to circumvent the improved areas to avoid detection.

4.3.1.3 Alternative 3: Lights and All-weather Road

Impacts to vegetation under Alternative 3 would be limited to the footprints of the all-weather road, drag road, and the stadium style lighting structures (*i.e.*, approximately 32 acres bursage-creosotebush plant community). These impacts would not be significant due to the surrounding plant communities being similar and the vastness of these communities regionally. However, indirect adverse effects to vegetation could occur in other areas where the infrastructure proposed in this alternative is not employed, as IEs attempt to circumvent the improved areas to avoid detection. The potential beneficial impacts of Alternative 3 are similar, but slightly less than those of the Preferred Action Alternative (as discussed in Section 4.3.1.1).

4.3.1.4 Alternative 4: No Action

Under the No Action Alternative illegal traffic would continue to create long-term direct impacts to vegetation from trampling, burning, and cutting. Fugitive dust generated from vehicular traffic and OBP enforcement actions would continue or increase, thus have an indirect effect on adjacent vegetation.

4.3.2 Non-native Invasive Species

4.3.2.1 Alternative 1: Preferred Action

The Preferred Action would disturb up to a total of approximately 163 acres of soils. Of this 76 acres are undisturbed and 87 acres are previously disturbed or developed. The disturbance would make the 76 acres of undisturbed soils susceptible to colonization by non-native invasive species such as Asian mustard, prickly russian thistle, and Mediterranean grass (*Schismus barbatus*). Examples of previously disturbed soils include agricultural areas, developed areas, and the area immediately adjacent to the US-Mexico border. Environmental design measures outlined in Section 5.0 would be followed to minimize the potential for non-native invasive species to be transported into and out of the project area by construction equipment and minimize the likelihood of colonization of disturbed soils in the project area.

This alternative would have a beneficial indirect impact as a result of reducing illegal traffic. Non-native invasive species are often transported across the US-Mexico border on the clothing and vehicles of IEs. Reducing illegal traffic would reduce this potential seed source of non-native invasive species.

4.3.2.2 Alternative 2: Lights Only

Up to approximately 17 acres of undisturbed soils could be potential disturbed under this alternative. Potential impacts would be similar to those described under Alternative 1 but to a lesser degree. Environmental design measures described in Section 5.0 would minimize the potential for non-native species to be transported into or out of the project area and for the colonization of disturbed soils with non-native invasive species.

4.3.2.3 Alternative 3: Lights and All-Weather Road

Alternative 3 would disturb up to a total of approximately 43 acres of soils. Of this approximately 32 acres are undisturbed and 11 acres are previously disturbed or developed. Potential impacts would be similar but less than those expected under the Preferred Action

Alternative. Environmental design measures presented in Section 5.0 to minimize the introduction and spread of non-native invasive species would be included as part of this alternative.

4.3.2.4 Alternative 4: No Action

No soils would be disturbed as a result of constructing border infrastructure under this alternative. However, soils would continue to be disturbed by illegal traffic and consequent OBP enforcement activities. Illegal traffic would continue and likely increase, thus serving as a seed source for non-native invasive species. Existing disturbed soils in the project area could become colonized by non-native invasive species without the implementation of the Preferred Action.

4.3.3 Wildlife

4.3.3.1 Alternative 1: Preferred Action

The Preferred Action would directly impact approximately 76 acres of wildlife habitat. This alternative would include the clearing of vegetation along the border to increase visibility, the installation of stadium style lighting, and the construction of the enforcement zone. Lighting would attract or repel various wildlife species within the project area; however, due to the small size of the project area and similar adjacent habitat no significant impacts would be expected regionally. Changes in photoperiod could cause disturbances in circannual hormone rhythms, which could alter normal reproduction, migration, and activity rates in some wildlife species. However, the majority of the project area (Phases I and II) is currently illuminated with portable lights and adjacent dark areas in the agriculture fields in Phase III would continue to provide non-illuminated areas for wildlife migration to and from the Colorado River riparian area; therefore impacts from the installation of stadium style lights are not expected to be significant. Large animal occurrences in the project area are sporadic (JTF-6 1998); therefore impacts to animal movement are not expected. Large animals could migrate around the fence at its terminus near Avenue C. The enforcement zone would potentially eliminate migration of small mammals and reptiles between the U.S. and Mexico. However, the majority of the adjacent land in Mexico along the international border in Phase I and II is urban. The affected species are likely common in both the U.S. and Mexico; therefore, no significant impacts to migration are expected. Reduced IE traffic through riparian habitat along the Colorado River would be a beneficial impact under the Preferred Action Alternative.

The construction of an all-weather patrol road would increase vehicle speeds within the project area. However, the all-weather road would be located within the 150-foot enforcement zone; therefore the likelihood of a collision between an OBP patrol vehicle and wildlife is minimal. It is highly unlikely that wildlife would be present between the primary border fence and the secondary fence (*i.e.*, 150-foot enforcement zone).

Previously degraded wildlife habitat along roadsides would be impacted in Phase I. Approximately 98 acres of desert scrub habitat would be impacted during Phase II. Phase III, due to its location in a previously disturbed area (levee), would have no effect on wildlife habitat.

4.3.3.2 Alternative 2: Lights Only

Implementation of Alternative 2 would impact approximately 0.6 acres of wildlife habitat similar to the habitat described in Section 4.3.2.1. The potential benefits of Alternative 2 are similar, but to a lesser degree than those of the Preferred Action Alternative.

4.3.3.3 Alternative 3: Lights and All-weather Road

Construction of Alternative 3 would impact approximately 32 acres of wildlife habitat similar to the habitat discussed for Alternative 1. However, indirect adverse effects to wildlife habitat could occur in other areas where the infrastructure proposed in this alternative is not employed, as IEs attempt to circumvent the improved areas to avoid detection. The potential benefits of Alternative 3 are similar, but slightly less than those of the Preferred Action Alternative.

4.3.3.4 Alternative 4: No Action

There would be no direct impacts to wildlife resources from the No Action Alternative. There would be no loss or alteration of habitat because no construction would occur. However, indirect adverse impacts to wildlife habitat would continue to occur due to illegal foot and vehicular traffic.

4.4 UNIQUE AND SENSITIVE AREAS

4.4.1 Alternative 1: Preferred Action

Impacts to the YDMA would occur as a result of the Preferred Action. Indirect impacts could occur to the YDMA if IEs attempt to circumvent the proposed infrastructure to the east, possibly causing damage to the vegetation communities and wildlife habitat of the YDMA. Conversely, indirect beneficial impacts would also occur as a result of less IE traffic through the proposed enforcement zone. In phases I and III, no unique and sensitive areas would be directly impacted.

The 150-foot enforcement zone proposed in Phase II would impact approximately nine acres of the extreme western portion of the YDMA. Impacts to this area would be to soils, vegetation, and wildlife resources as discussed in those respective sections. Temporary increases in noise and decreases in air quality would result from Phase II, but the effects would be localized and would return to pre-project conditions upon completion of the construction activities. Design measures described in Section 5.0 would minimize impacts to the YMDA. Therefore, potential impacts to the YMDA are not expected to be significant.

4.4.2 Alternative 2: Lights Only

Upon implementation of this alternative approximately 0.5 acre of the YDMA would be impacted. These impacts are expected to be minimal and insignificant due to the small size of the potential impacted area. Furthermore, the direct impacts associated with this alternative would be similar to those of the Preferred Action. In addition, the potential beneficial impacts of Alternative 2 are similar, but less than those resulting from the Preferred Action. Without the additional infrastructure (all-weather roads and secondary fencing), IE apprehension would not be as close to the border as in Alternative 1. Apprehension at a point closer to the border protects more unique and sensitive areas north of the border from damage by illegal foot and vehicle traffic. Indirect adverse impacts could occur to the YDMA as IEs attempt to circumvent the proposed infrastructure, possibly causing damage to the vegetation communities and wildlife habitat of the YDMA.

4.4.3 Alternative 3: Lights and All-weather Road

Impacts would be similar to the Preferred Action but would impact fewer acres of the YDMA (3.025 acres) due to less construction activity. The potential benefits of Alternative 3 are similar, but slightly less than those resulting from the Preferred Action (as discussed in Section 4.4.2).

4.4.4 Alternative 4: No Action

The current condition of the YDMA would not directly change as a result of taking no action. However, indirect adverse impacts to the unique and sensitive areas would continue to occur due to illegal foot and vehicular traffic.

4.5 PROTECTED SPECIES AND CRITICAL HABITAT

4.5.1 Alternative 1: Preferred Action

The Preferred Action would potentially impact the habitat of two state and one Federally protected wildlife species; the western burrowing owl, FTHL, and southwestern willow flycatcher. Lighting would be designed to eliminate illumination of the riparian corridor near the project area along the Colorado River in an effort to minimize any potential impacts to the southwestern willow flycatcher. By concentrating the lighting from the stadium style lights in the agricultural area between the levee and the riparian area, the potential for impacts to the southwestern willow flycatcher would be minimized. The lights would be approximately 75 to 250 feet from the riparian area, varying based on the width of the adjacent agricultural area. The lights would be installed to illuminate the agricultural area and shielded in a manner to not allow light spillage into this riparian area. There would be no ground disturbance or alteration of habitat within the Colorado River riparian area, as a result of the construction of the stadium style lights.

Although this area is within the Lower Colorado Recovery Unit for the southwestern willow flycatcher, the closest recorded flycatcher site to the proposed project area is located at the confluence of the Gila River with the Colorado River (USFWS 2002), approximately 20 miles north. There are no known flycatcher nesting sites within this reach of the Colorado River; however this area is considered stopover and potential breeding habitat. Environmental design measures proposed in Section 5.0 would minimize potential impacts to the southwestern willow flycatcher. Therefore, no significant impacts to the southwestern willow flycatcher are anticipated.

The Preferred Action could potentially impact western burrowing owls and their habitat within the project area. However, suitable owl habitat exists adjacent to the project area and therefore if the proposed construction occurred outside of the breeding season and the mitigation measures mentioned in Section 5.0 are implemented the birds would be able to relocate to habitat outside of the project area. Thus, not creating a significant impact to the owls.

FTHL habitat could be impacted by Phase II of construction, and there is the potential for taking individuals and their habitat. However, reduced IE traffic would benefit protected species

including the FTHL and sensitive habitats. Design measures discussed in Section 5.0 of this document would minimize the impacts to FTHL.

Indirect adverse impacts to protected species would occur as IEs travel to adjacent areas with less developed border infrastructure in order to avoid detection, causing habitat degradation. An indirect benefit would be less IE traffic through the proposed enforcement zone.

4.5.2 Alternative 2: Lights Only

Construction of Alternative 2 would potentially impact western burrowing owls, southwestern willow flycatcher, and FTHL. The impacts associated with this alternative would be similar in nature to those of the Preferred Action but would impact less acreage of potential habitat. Alternative 2 would not result in significant impacts to protected species. However, the infrastructure proposed in this alternative would not contribute to IE apprehension as effectively as the Preferred Action, and, thus, provide less protection to protected species and their habitats north of the border. Indirect impacts to protected species would be similar to those discussed in Section 4.5.1.

4.5.3 Alternative 3: Lights and All-weather Road

Construction of Alternative 3 would potentially impact western burrowing owls, southwestern willow flycatcher, and FTHL. The impacts associated with this alternative would be similar in nature to those of the Preferred Action but would impact less acreage of potential habitat. Impacts resulting from the implementation of Alternative 3 are not expected to be significant in nature. However, the potential benefits of Alternative 3 are similar, but slightly less than those resulting from the Preferred Action (as discussed in Section 4.5.2). Indirect impacts to protected species as a result of this alternative would be similar to those discussed in Section 4.5.1.

4.5.4 Alternative 4: No Action

No direct adverse impacts or benefits to protected species or their habitats would result from taking No Action. However, indirect adverse impacts to protected species within the project corridor could continue to occur due to illegal foot and vehicular traffic.

4.6 CULTURAL RESOURCES

4.6.1 Alternative 1: Preferred Action

It is anticipated that all infrastructure activities would occur adjacent to or on top of the existing historic levee and flood control system. Furthermore, this system is still in use and the levee roads are routinely maintained. Consequently, no direct impacts to the five previously recorded archeological sites are anticipated from construction activities. If construction activities would occur within the boundaries of any of the five previously recorded sites then there would be the potential for adverse direct impacts. Furthermore, the visual integrity of the sites has already been compromised by recent development of the area in and around San Luis (Northland 2004). Environmental design measures proposed in Section 5.0 would minimize direct impacts to these sites, as well as unknown cultural resources sites in the project area. The one recorded site ^{(b)(3)} [REDACTED] and three isolated occurrences observed during the cultural resources survey are not considered eligible for listing on the NRHP and therefore are not considered historic properties.

Indirectly, the reduction of illegal traffic through the area would have the potential for long-term beneficial impacts to cultural resources found in the region. The reduction of illegal traffic would decrease the amount of foot and vehicle traffic through the area, which has the potential of decreasing impacts to cultural resources.

4.6.2 Alternative 2: Lights Only

Potential impacts under alternative 2 are similar to those under alternative 1. Lights would be constructed adjacent to or on top of the existing levee and flood control system. If any construction would take place within the boundaries of the five previously recorded sites then there would be the potential for direct adverse impacts to those NRHP eligible sites. Potential impacts associated with the one newly recorded site and three isolated occurrences would not be significant. Environmental design measures presented in Section 5.0 would minimize the potential for impacts to the five previously recorded cultural resource sites.

Indirectly, the reduction of illegal traffic through the area would have the potential for a long-term beneficial impacts to cultural resources found in the region. The reduction of illegal traffic would decrease the amount of foot and vehicle traffic through the area, which has the potential of decreasing impacts to cultural resources. However, the potential reduction in illegal traffic would be less under this alternative compared to the Preferred Action.

4.6.3 Alternative 3: Lights and All-weather Road

Potential effects to cultural resources would be similar to effects anticipated under the Preferred Action. This alternative would indirectly have a long-term beneficial impact to cultural resources but not to the same degree as the Preferred Action. The lack of a secondary fence does not provide a physical barrier to IEs. Therefore, IEs would still have the potential to indirectly impact cultural resources.

4.6.4 Alternative 4: No Action Alternative

Under the No Action Alternative there would be no direct impacts to cultural resources. There is a potential for indirect, negative impacts to cultural resources from continued illegal traffic into the area as well as north of the border region. Without the establishment of the lights and border infrastructure the OBP would not be as effective in deterring illegal traffic through the area. As a result there is the potential for indirect, negative impacts to cultural resources due to illegal foot and vehicle traffic through the area. The stadium style lighting and border infrastructure would also deter illegal looting of sites in proximity to the project area.

4.7 AIR QUALITY

4.7.1 Alternative 1: Preferred Action

Under the Preferred Action, increased exhaust pollutants and dust emissions would be temporarily created from the operation of heavy equipment used for construction activities. Measures outlined in Section 5.0 would reduce these temporary impacts. Most construction would be conducted as JTF-N or National Guard units become available. The total amount of time needed to complete the Preferred Action is not known at this time due to the uncertainty of which unit(s) would perform the work. Regardless of which unit is tasked to complete any portion of the project, the duration of construction activities by any one military unit would not exceed two weeks. Given the nature of the construction activities proposed within this alternative, it is estimated that approximately 20 weeks of work would be needed to complete the construction. These 20 weeks would occur intermittently, thus extending the overall project duration over a three to four year period. Activities associated with road construction would be expected to be the largest generator of fugitive dust emissions. Any increases or impacts to ambient air quality during construction and maintenance activities are expected to be short-term and can be reduced further through the use of standard dust control techniques, including roadway watering and

chemical dust suppressants. Therefore, construction activities are not expected to contribute to the long-term degradation of the area's air quality.

An air quality impact and conformity analysis was completed for a similar OBP infrastructure project within the Naco-Douglas Corridor in Cochise County, Arizona (DHS 2003b). Emissions of SO₂ and PM₁₀ were calculated for the construction of approximately 50 miles of roads. Findings showed that in the worst-case scenario, total emissions (16.570 tons/year) were less than the *de minimus* thresholds and the moderate nonattainment threshold value for General Conformity determinations (100 tons/year) and thus would not violate National or state standards (DHS 2003b). For the most part, soils located within the proposed project corridor are similar (sandy loamy soils) to those in the above-mentioned Naco-Douglas EA. The types of disturbances and construction equipment used to construct the enforcement zone would be similar to the Naco-Douglas project; however, the area disturbed and duration of construction would be significantly less. Therefore, this project (13 miles of construction) would conform to all standards and not create any significant impacts.

Upon completion of the road construction, fugitive dust emissions would be lowered as a result of the all-weather road. The Preferred Action would have an indirect beneficial effect on the area's air quality. Implementation of this alternative would reduce IE traffic thus reducing the need for OBP agents to pursue IEs off-road which creates fugitive dust emissions.

4.7.2 Alternative 2: Lights Only

Direct impacts created by this alternative would be similar in type to that of the Preferred Action; however, the magnitude would be less, and exhaust pollutants and fugitive dust emissions associated with the heavy equipment used for road construction would be eliminated under this alternative. Fugitive dust emissions from unimproved roads would still occur at the same level or greater as a result of the OBP agents patrolling along the international border. Eliminating the exhaust emissions from the generators, which are currently supplying power to the portable lighting systems, would have a direct beneficial impact on the air quality of this area. This alternative would have the same indirect beneficial effect on the area's air quality as the Preferred Action; however, the magnitude would be less in the absence of the secondary fence, the cleared enforcement zone, and all-weather patrol.

4.7.3 Alternative 3: Lights and All-weather Road

Direct impacts and direct beneficial impacts created by this alternative would be similar in type and magnitude to that of the Preferred Action. This alternative would have the same indirect beneficial effect on the area's air quality as the Preferred Action; however, the magnitude would be less in the absence of the secondary fence and cleared enforcement zone.

4.7.4 Alternative 4: No Action

Under this alternative, hydrocarbon emissions would remain status quo. Because of the lack of deterrence measures along the international border in the Yuma Station AO, OBP agents are often forced into off-road pursuits, which may increase fugitive dust emissions in the area if IE entry attempts increase.

4.8 WATER RESOURCES

4.8.1 Surface Waters

4.8.1.1 Alternative 1: Preferred Action

The Preferred Action Alternative would not significantly impact surface waters. During construction activities, water quality within irrigation ditches would be protected through the use of best management practices (BMPs), as developed in a storm water pollution prevention plan (SWPPP) required for construction projects impacting more than one acre. The water erosion potential of soils within the project corridor are slight to moderate.

Roadway construction activity typically requires that workable soil moisture content be obtained in order to properly compact soils for roadbed construction and to reduce air quality impacts. Based on water usage from a recent roadway project near Douglas, Arizona, a mile of all-weather surface would require approximately 66,000 gallons of water for construction and dust suppression (DHS 2003b). Thus, approximately 594,000 gallons (9 miles x 66,000 gallons) of water would be required for construction and dust suppression for the all-weather roads. The use of 594,000 gallons of water would be spread out through the construction process; therefore, it should not significantly impact surface water sources. The amount and source of water required for dust suppression and construction techniques would be determined once site-specific information is identified.

4.8.1.2 Alternative 2: Lights Only

Impacts to surface water would be slightly less than discussed in the Preferred Action Alternative. Water quality within irrigation ditches would be protected during construction activities through the use of BMPs as developed in a SWPPP. Impacts to water resources needed for road construction would be less than the Preferred Action, due to only temporary maintenance road construction. Indirect impacts associated with the construction process would be insignificant and minimized through the use of environmental design measures discussed in Section 5.0. Additional indirect impacts could also occur as IEs attempt to circumvent the proposed infrastructure causing impacts to water resources outside of the project area.

4.8.1.3 Alternative 3: Lights and All-weather Road

Impacts to surface waters upon implementation of this alternative are expected to be direct insignificant impacts. The impacts associated with this alternative would be greater than Alternative 2 but less than the Preferred Action. Water quality within irrigation ditches would be protected during construction in accordance with a SWPPP. Indirect impacts associated with the construction process would be insignificant and minimized through the use of environmental design measures discussed in Section 5.0. Additional indirect impacts could also occur as IEs attempt to circumvent the proposed infrastructure causing impacts to water resources outside of the project area.

4.8.1.4 Alternative 4: No Action

Implementing the No Action Alternative would not directly impact surface waters. Because no construction would take place, no impacts would result from this action. Without the establishment of the border infrastructure the OBP would not be as effective in deterring illegal traffic through the area. As a result there is the potential for indirect, negative impacts to surface water resources due to illegal foot and vehicle traffic through the area.

4.8.2 Groundwater

4.8.2.1 Alternative 1: Preferred Action

The Preferred Action Alternative would not result in direct or long term impacts to groundwater resources. No groundwater sources would be used to reduce fugitive dust during construction activities; thus, no significant impacts to groundwater would be expected upon implementation of this alternative.

4.8.2.2 Alternative 2: Lights Only

Alternative 2 would have the same impacts to groundwater resources as the Preferred Action.

4.8.2.3 Alternative 3: Lights and All-weather Roads

Alternative 3 would have the same impacts to groundwater resources as the Preferred Action.

4.8.2.4 Alternative 4: No Action

The No Action Alternative would not impact groundwater resources.

4.8.3 Wetlands and Other Waters of the United States

4.8.3.1 Alternative 1: Preferred Action

The Colorado River and its riparian area is the only WUS/wetlands site in the project area. The Preferred Action Alternative would not directly impact the river and its riparian areas. An indirect benefit of the Preferred Action would be decreased IE traffic through the Colorado River due to night illumination increasing the OBP agents visibility and apprehension capabilities.

4.8.3.2 Alternative 2: Lights Only

Alternative 2 would not impact wetlands or other WUS. Indirect beneficial impacts to the Colorado River would be similar to those discussed in Section 4.8.3.1.

4.8.3.3 Alternative 3: Lights and All-weather Roads

Alternative 3 would have similar impacts as Alternative 2.

4.8.3.4 Alternative 4: No Action

Implementation of the No Action Alternative would not impact wetlands and other WUS. Indirect adverse impacts would continue due to illegal traffic degrading riparian habitat through trampling and deposition of trash

4.9 SOCIOECONOMICS

OBP activities generally result in beneficial impacts to local, regional, and national economies. The diversity of projects performed by the OBP implies that socioeconomic impacts would vary considerably. Some projects have very small construction and operational impacts while others are more substantial (e.g., construction costs, operational impacts, and project magnitude). The

actual construction impacts are usually localized due to the temporary nature of the construction activities and the fact that the predominance of labor for these projects in the past has been provided by the JTF-N and the Arizona National Guard. Consequently, the purchase of construction materials and supplies (increase in local sales and income) is typically the primary, direct economic effect in the project vicinity.

Although construction impacts are temporary in nature, the beneficial effects associated with implementation of OBP projects are expected to continue for the economic life of the project. All actions provide socioeconomic benefits from increased detection, deterrence, and interdiction of illegal drug smuggling activities. Benefits include reduced enforcement costs, losses to personal properties, violent crimes, and entitlement programs. These actions can also have direct positive benefits from increased economic activity.

4.9.1 Alternative 1: Preferred Action

No significant effects, direct or indirect, would occur to population or employment, because of implementation of the Preferred Alternative. The total cost of this project is not known at this stage of the planning process. The exact amount that would be spent in the local area is also unknown but can be assumed to be between 15 and 30 percent of the total project cost. These expenditures are subject to economic multiplier effects. The multiplier indicates the total impact of a project or action as estimated from direct expenditures. Approximately 2 acres of private land would be removed from the tax base of the area. This would result in a minimal loss in annual property tax income.

National Guard or Active/Reserve military units from JTF-N would perform most construction activities; therefore, the overall area population would not be significantly impacted. Minor increases in local population would occur during periods of construction.

The socioeconomic community would benefit from effective enforcement operations across the project area. Overall, implementation of this alternative would reduce adverse impacts that currently exist on local law enforcement and the emergency response community. The Preferred Action would provide additional protection from illegal vehicle and foot traffic, lower crime, and potentially improve the quality of life along the border.

As IEs move laterally along the border in an attempt to circumvent the proposed infrastructure, the possibility exists that recreational areas (*i.e.*, Algodones Dunes) could be impacted. In addition, IE fatalities could also potentially occur in the remote areas east and west of the project corridor. The magnitude of impacts associated with this possible relocation is not known at this time due to the unpredictable nature of IE activity. However, the proposed enforcement zone would allow additional flexibility in deploying OBP agents to other areas in an effort to halt/control illegal traffic in areas outside the enforcement zone. Beneficial impacts are also expected to occur to recreational opportunities such as Friendship Park through the construction of the proposed enforcement zone. The presence of the proposed infrastructure at Friendship Park would serve as a deterrent to IEs, thus, creating a safer environment.

4.9.2 Alternative 2: Lights Only

Socioeconomic impacts as a result of the implementation of this alternative would be similar to those discussed for Alternative 1 but with less magnitude. Beneficial impacts would be greatly reduced compared to the Preferred Action Alternative.

4.9.3 Alternative 3: Lights and All-weather Roads

Socioeconomic impacts as a result of the implementation of this alternative would be similar to those discussed for Alternative 1 but with less magnitude. The potential benefits of Alternative 3 are similar, but slightly less than those resulting from the Preferred Action (as discussed in Section 4.9.2).

4.9.4 No Action Alternative

Socioeconomics in the area would generally remain the same as they are now under the No Action Alternative. Limited control of the border and access along the border would impede OBP response, which, in turn, would not enhance apprehension capabilities. The No Action Alternative would not provide additional protection from illegal foot and vehicle traffic or reduce crime. The quality of life along the border would not be increased under this alternative.

4.10 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

This section of the EA addresses the Preferred Action's potential to generate disproportionately high and adverse human or environmental effects on minority and low-income populations, as required under E.O. 12898, "Federal Actions to Address Environmental Justice in Minority

Populations and Low-Income Populations.” The predominance of the population (about 64 percent) claims to be non-Hispanic whites. The average PCPI of the families within the counties along the border is below the state and national average for PCPI. However, no construction activities or other permanent actions are expected to be located near minority or low-income residential areas. No displacement of residential or commercial structures or areas is anticipated as a result of this project. The project would beneficially affect the entire ROI regardless of race and/or income level, by reducing crime in areas where the lighting is installed. Therefore, this project would not result in any violations of the intent of E.O. 12898.

E.O. 13045, “Protection of Children from Environmental Health Risks” requires that Federal agencies evaluate the potential to generate disproportionately high environmental health and safety risks to children. The actions proposed in this EA would not result in disproportionately high or adverse environmental health or safety impacts to children. To the contrary, the Preferred Action would increase the safety of children by decreasing crime in the area.

4.11 NOISE

4.11.1 Alternative 1: Preferred Action

Temporary construction noise impacts would occur as a result of the operation of heavy equipment. Noise levels created by construction equipment would vary greatly depending on factors such as the type of equipment, the specific model, the operation being performed, and condition of the equipment. The equivalent sound level of the construction activity also depends on the fraction of time that the equipment is operated over the time period of the construction.

Only one sensitive receptor, Friendship Park, currently exists in the project area. Increases in noise levels would be short-term and are not expected to contribute to the long-term degradation of the area’s noise environment. Measures presented in Section 5.0 would reduce potential impacts from noise emissions.

Slight increases in noise levels may occur from increased traffic speed along the all-weather road. However, there would be no increase in the amount of vehicle traffic expected to use the all-weather patrol road. The installation of the stadium style lights would eliminate the use of diesel powered portable lights in the project area, thus reducing the nighttime noise associated with the operation of portable lights.

4.11.2 Alternative 2: Lights Only

Under this alternative, effects from noise would be similar to those expected under the Preferred Action, but to a considerably less magnitude. Potential increases in noise emissions as a result of increased vehicle speeds along the border patrol road would not occur. Increases in noise levels would be short-term and ambient noise levels would be expected to return following the completion of construction.

4.11.3 Alternative 3: Lights and All-weather Roads

Potential effects from increased noise levels under this alternative would be similar to those expected under the Preferred Action.

4.11.4 Alternative 4: No Action

The No Action Alternative would not result in any increases in ambient noise levels. The current illegal traffic would continue and likely increase, resulting in the need for additional patrols along the border, which may increase ambient noise levels.

4.12 AESTHETICS

4.12.1 Alternative 1: Preferred Action

Under the Preferred Action Alternative, construction activities would temporarily impact the local aesthetics. New infrastructure constructed in the study area would also have the potential to adversely impact the aesthetic value of the area. This would be particularly true of infrastructure with a high visibility such as the stadium style lighting structures and to a lesser extent fencing. The lights would only have an adverse impact on aesthetics while in operation near the City of San Luis. However, background lighting from San Luis currently has an adverse effect on the nighttime aesthetics in proximity to the city. Remote sections of lighting would potentially degrade the tranquil, dark skies for which Arizona is known. Road maintenance and new road construction would have a relatively low potential for impact on aesthetics given its low profile and location within previously disturbed areas. Design measures for stadium style lights would minimize impacts to aesthetic resources are detailed in Section 5.0.

Indirect impacts to aesthetics on lands east and west of the project area could occur as a result of illegal traffic attempting to avoid the enforcement zone. The OBP cannot predict where the shift in illegal traffic may occur. However, the enforcement zone would allow additional flexibility in

deploying OBP agents to other areas in an effort to halt or control illegal traffic in areas outside the enforcement zone.

An indirect benefit of the implementation of Alternative 1 would be the reduction in garbage and other refuse left behind by IEs and a reduction in trampled vegetation north of the project corridor. With the improved infrastructure proposed in this alternative, OBP agents would be able to apprehend IEs closer to the border, reducing the amount of garbage and the loss of vegetation north of the project area.

4.12.2 Alternative 2: Lights Only

Under Alternative 2, new infrastructure constructed in the study area would have the potential to adversely impact the aesthetic value of the area. This would be particularly true of infrastructure with a high visibility such as the stadium style lighting structures. Possible mitigation measures for permanent light poles are detailed in Section 5.0.

Indirect benefits resultant from this alternative would be less than those of the Preferred Action Alternative.

4.12.3 Alternative 3: Lights and All-weather Roads

Direct impacts to aesthetics would be similar to those caused by the Preferred Action, but to a lesser extent due to reduced construction activity. The potential benefits of Alternative 3 are similar, but slightly less than those resulting from the Preferred Action (as discussed in Section 4.12.1).

4.12.4 Alternative 4: No Action

Under the No Action alternative there would be no additional impacts from construction activities or additional infrastructure. Without the additional infrastructure, illegal immigration and traffic through the area would continue at current levels and probably increase. As a result, trash and other items left by IEs would continue to impact the aesthetic value of the area.

4.13 CUMULATIVE IMPACTS

This section of the EA addresses the potential cumulative impacts associated with the implementation of the alternatives outlined in Section 2.0 and other projects/programs that are

planned within or near the project area. The following paragraphs present a general discussion of proposed and reasonably foreseeable CBP, OBP, and other agency projects in southern Arizona and the cumulative effects that would be expected irrespective of the alternative selected. Reasonably foreseeable projects are those likely to occur within the next five years.

4.13.1 Other CBP/OBP Operations

The OBP is currently conducting projects in the region. Other recently completed or reasonably foreseeable OBP projects in southern Arizona include:

- Installation of 6 emergency beacons within the Cabeza Prieta National Wildlife Refuge (CPNWR) and Barry M. Goldwater Range (0.0012 acre);
- Implementation of Operation Skywatch (a seasonal search and rescue mission using helicopters and fixed-wing aircraft) (INS 2002a);
- Proposed housing developments within the Ajo Station's AO (52 unit housing development on 10 acres in Ajo and a 15 unit housing development at Lukeville, Arizona). The development will provide housing for approximately 225 agents and their families – GSA will contract the construction and CBP will lease housing from private entity (Parsons 2003);
- Proposed leasing of an existing vehicle maintenance facility in Ajo, Arizona (Feeney 2003);
- Proposed lease/purchase/withdraw option of up to 35 acres of native desert habitat adjacent to the existing Ajo BP Station. The existing station land and proposed acquisition will be converted for proposed infrastructure (e.g., garage, office space, etc.) requirements (Parsons 2003);
- Proposed construction of vehicle barriers along the U.S.-Mexico border from Avenue C in Yuma, Arizona to the western boundary of the CPNWR;
- Construction of 40 RVS along approximately 45 miles of the U.S.-Mexico border in the Yuma and Wellton stations;
- Conversion of the existing Yuma Station complex into a training facility for BP personnel;
- The deployment of four additional rescue beacons in the Yuma Station's AO;
- Potential addition of 4 camp details on the CPNWR and BMGR within the Wellton Station's AO;
- Potential addition of 2 camp details on the CPNWR within the Ajo Station's AO in support of ABC Initiative;

- Potential construction of vehicle barriers, an all-weather road, and drag road along the 56 miles of CPNWR-Mexico border;
- Installation of temporary vehicle barriers at Agua Dulce Pass, Davidson Canyon Road, and Papago Well Road within the CPNWR;
- Proposed maintenance of all existing roads and administrative trails on the CPNWR;
- Proposed installation of two additional rescue beacons on the CPNWR;
- Proposed installation of 12 RVS systems along the U.S.-Mexico border south of Ajo, Arizona;
- Proposed installation of vehicle barriers from San Luis to the east end of TON;
- Proposed use and maintenance of all existing roads and administrative trails on the BMGR;
- Proposed installation of a water well at the existing Desert Grip Camp in the Wellton Station's AO; and
- Potential clearing of vegetation along the Colorado River, in cooperation with BLM, to minimize concealment opportunities.

The OBP might be required to implement other activities and operations that are currently not foreseen or mentioned in this document. These actions could be in response to national emergencies or security events like the terrorist attacks on September 11, 2001, or to changes in the mode of operations of the potential IEs. For instance, during the summers of 2001 to 2004, the Tucson Sector temporarily had to detail aircraft and support personnel from other sectors to provide additional search and rescue (SAR) missions. The sole purpose of these missions (known as Operation Skywatch) was to save the lives of IEs. Operation Skywatch temporarily assigns 20 helicopters and two fixed-wing aircraft, two un-manned aerial vehicles, 24 pilots, up to 12 aircraft mechanics and other support personnel as needed to the Tucson Sector for a period of approximately 125 days, beginning around June 1 and ending in September each year. SAR aerial reconnaissance also indirectly benefits the natural environment by reducing the amount of off-road traffic required to rescue IEs. The BP has prepared an EA documenting the potential impacts from Operation Skywatch (INS 2002a). The Yuma Sector, on an as-needed basis, provides additional support.

The BP recently completed a supplemental EA for the Expansion of Operation Desert Grip (DHS 2003a). This project temporarily details two trailers, eight agents, and six vehicles in two areas with high illegal entrant and drug smuggling activity in a remote region of the desert in both the

Tucson and Yuma sectors. Trailers are located on previously disturbed areas. The purpose of this project is to provide a 24-hour presence along the border to deter IEs in an effort to save lives.

The CBP is currently conducting projects in the region. Other recently completed or reasonably foreseeable CBP projects in southern Arizona include:

- New infrastructure at the Lukeville – Sonoyta crossing with a total of 13,690 ft² of office space, 13,259 ft² of light industrial space, 1,185 ft² health unit space, and 556 ft² of warehouse/storage space (CBP 2004); and
- New infrastructure at the San Luis crossing with a total of 13,286 ft² of office space, 24,834 ft² of light industrial space, 356 ft² health unit space, and 769 ft² of warehouse/storage space (CBP 2004).

4.13.2 Other Agency Projects

Other Federal, state and private agencies have projects planned within the ROI that could affect the region's natural and human environment. The BMGR is an active 1.9 million acre military training installation used for tactical aviation training (USAF 2004). No specific projects are listed here for the BMGR. Projects currently being planned by other agencies could affect areas of Yuma County utilized by the OBP. The CBP and OBP would maintain close coordination with these agencies to ensure that their activities do not conflict with other agency(s) policies or management plans. The OBP would consult with applicable state and Federal agencies prior to performing any construction activities and would coordinate operations so that it does not impact the mission of other agencies. The following is a list of projects other applicable agencies are conducting or planning within the ROI.

- A new commercial POE is being proposed by the Greater Yuma Port Authority approximately 6 miles east of the current San Luis POE and would be approximately 15 acres in size. This POE would be located on BOR land and would be used by the CBP and other agencies but would be constructed by the Port Authority (BOR 2000);
- The USAF and USMC have released a draft EIS for the implementation of an INRMP the BMGR. The INRMP would be produced following the completion of the environmental analysis. The INRMP, if implemented, could also change the areas available for certain OBP operations/activities;
- The NPS is in the process of preparing a Wilderness Management Plan for the Wilderness Areas located within the OPCNM;
- Arizona Department of Transportation's planning improvements for Yuma County through 2009 are:
 - Route 8: Construction of a rest area and road rehabilitation using asphaltic rubber/cement,

- Route 85: Chip Seal,
- Route 95: Construction of a passing lane and road rehabilitation using asphaltic rubber/cement (ADOT 2004), and
- Area Surface Highway. Construct 23 miles of new roadway from the proposed commercial POE near San Luis to Interstate 8 east of Yuma (Yuma Metropolitan Planning Organization 2004); and
- Yuma County, Arizona Department of Public Works planned projects are:
 - County-wide general road maintenance,
 - Crack sealing at Mesa del Sol,
 - County-wide dust control,
 - Overlay projects at Quartz, Ruby, Marble, Sapphire and Emerald (Yuma), and
 - Chipseal projects in the Mohawk Valley Area (YCDPW 2004).

With the exception of the proposed new roadways, the remaining projects would be along existing corridors and/or within previously disturbed sites (e.g., road reconstruction, military activities). Land use would change along the new roadways, and additional wildlife habitat would be lost. The magnitude of these effects would depend upon the length and width of the new roadway ROW and the extant conditions within and adjacent to the ROW.

4.13.3 Cumulative Environmental Effects

The CEQ defines a cumulative impact as an impact on the environment, which results from the incremental impact of multiple past, present, and future actions with individually minor but collectively significant effects (See 40 C.F.R. §1508.7). A cumulative impact can be concisely defined as the total effect of multiple land uses and developments, including their interrelationships, on the environment, including cultural and socioeconomic resources.

Past NEPA documents have evaluated and recorded cumulative effects of the BP operations/activities and infrastructure projects for the southwest border region. These included, but were not limited to, EAs from previous and current CBP and JTF-N projects, a Programmatic Environmental Impact Statement (USACE 1994), the Environmental Assessment for Operation Skywatch for Tucson Sector, Arizona (INS 2002a), the Environmental Assessment for Operation Desert Grip within the Tucson and Yuma Sectors, Arizona (INS 2002b), and the Supplemental Programmatic Environmental Impact Statement for INS and JTF-N Activities (USACE 2001a). Many positive cumulative impacts have been realized through BP activities. For example, construction and maintenance activities have had cumulative positive impacts on socioeconomic resources within the border area and the Nation through reductions in illegal drug smuggling

activities. The legacy INS (now CBP) activities completed from 1994 to 1999 have provided information on over 100 new cultural resources potentially eligible for NRHP listing.

4.13.3.1 Soils

Ongoing CBP infrastructure and operations have required some form of ground disturbance of native soil. Soils that are denuded are vulnerable to erosion. The proposed OBP infrastructure and operations are not expected to produce significant cumulative adverse impacts on soils in the project area because appropriate environmental design and mitigation measures will be implemented to prevent soil erosion. Furthermore, erosion has been alleviated on hundreds of miles of road through ongoing actions such as improved drainage crossings (e.g., culverts, gabions, and other low water crossings) and erosion control measures (e.g., water bars, mats, straw bales, and re-seeding). Erosion control is an important planning element of approved actions. In addition, fences have precluded illegal foot and vehicular traffic that, in turn, disturb soils (USACE 2001b). There are soil disturbance activities (e.g. drag-roads) that are inherent with ongoing and approved CBP actions that would yield minor adverse secondary effects. However, the vast majority of impacts associated with approved projects are from road maintenance and improvement projects planned to alleviate soil erosion; thus, the cumulative effects on soils would be beneficial.

Alternative 1: Preferred Action

Alternative 1 would impact soils by approved projects that require some form of ground disturbing construction. Impacts on soils would include erosion and compaction. In addition to the estimated impact of approved CBP operations and infrastructure, the reasonably foreseeable CBP and other agency projects presented in Sections 4.13.1 and 4.13.2 would have similar effects on soils in the region. However, no soils would be expected to incur significant cumulative adverse impacts. Due to the relatively small size of proposed infrastructure when compared to the entire project corridor and region as a whole, soils would only receive minor cumulative impacts within the region. Mitigation measures and the use of BMPs in CBP and other agency projects would reduce the severity of potential impacts to soils. Indirect impacts could occur to soils outside the project area through IEs attempting to escape detection by circumventing proposed infrastructure systems.

Beneficial cumulative impacts of Alternative 1 would include the reduction of off-road vehicle and foot traffic by both IEs and OBP agents. The proposed improvements would give OBP agents improved access to the border, apprehend IEs faster and closer to the border, and reduce the

frequency of off-road vehicular and foot traffic. Reduction in off-road foot and vehicular traffic would significantly alleviate soil loss due to erosion, loss of vegetative cover, and compaction.

Alternative 2: Lights Only

The cumulative impacts to soils would be very similar to Alternative 1 but to a lesser degree due to the limited amount of infrastructure proposed under this alternative. In addition to the estimated impact of approved CBP technology-based operations and infrastructure, the reasonably foreseeable CBP and other agency projects presented in Sections 4.13.1 and 4.13.2 will have effects on soils in the region. The potential for indirect impacts to soils outside of the project area due to IEs trying to escape detection near the proposed infrastructure could occur. However, it is not known at this time the severity of these impacts to those areas because illegal foot traffic patterns are totally at the discretion of the IEs.

Alternative 3: Lights and All-weather Roads

The cumulative impacts to soils would be very similar to Alternative 1 but to a lesser degree.

No Action

The No Action Alternative would have the fewest direct cumulative impacts to soils as only the ongoing CBP infrastructure and operations and construction projects from other agencies would be continued. The No Action Alternative does have a cumulative direct impact as ongoing actions have subjected native soil to some form of ground disturbance. In addition, the No Action Alternative could yield potential indirect impacts to soils as existing and future erosion problem areas potentially repaired by CBP actions would be obviated. Furthermore, reasonably foreseeable CBP and other agency projects presented in Sections 4.13.1 and 4.13.2 would likely have adverse cumulative effects on soils in the region.

4.13.3.2 Vegetation Communities

The primary cumulative effect of the past and proposed projects is the permanent loss of vegetation. Throughout the Yuma Station's AO, native vegetation, consisting of mostly disturbed habitat, semi-desert grassland, and desert scrub communities, has been impacted by ongoing CBP infrastructure and operations and activities. In addition, vegetation communities have been indirectly impacted by increased illumination associated with stadium-style and portable lights.

Alternative 1: Preferred Action

Vegetation would be directly impacted by approved infrastructure construction and increased illumination under Alternative 1. Much of the area to be impacted has been previously disturbed (e.g., existing roads and agricultural fields) or is naturally void of vegetation. In addition, impacts from roads and fences are calculated separately, when, in reality, this infrastructure would typically be constructed within the same footprint. Also, other reasonably foreseen CBP and other agency construction projects would have a cumulative impact on and further reduce vegetation. These impacts would be insignificant due to the degraded nature of the vegetation, the amount of disturbed areas used, and due to the vast amount of similar habitat surrounding the project corridor.

There is the potential for indirect impacts to vegetation communities to occur outside of the project area due to IEs trying to escape detection and apprehension near the proposed infrastructure. Illegal traffic currently attempting to enter the U.S. in proximity to the proposed project area would likely shift to less secure areas of the border. During the period FY 2001 to FY 2004 (June 30 2004), 20,000 to 33,000 IEs were apprehended annually in the San Luis area and 13,000 to 23,000 IEs were apprehended annually in the River area. These two areas are the areas potentially affected by the proposed project. It can be assumed at least these numbers of IEs would attempt to illegally enter the U.S. in other areas once the proposed enforcement zone is completed. However, the severity and location of the impacts are not known at this time because illegal traffic patterns are totally at the discretion of the IEs. The severity of potential impacts to vegetation communities would depend on the location of the illegal traffic, type and condition of vegetation community, and time of year. Implementation of the proposed project would allow the OBP greater flexibility in patrolling and assigning agents to deter or halt illegal traffic in those areas away from the project area.

The beneficial cumulative impacts of Alternative 1 would include the reduction of off-road vehicle and foot traffic by both IEs and BP agents. The proposed improvements would give BP agents improved access to the border, the ability to apprehend IEs more quickly and closer to the border, and reduce the frequency of off-road vehicular and foot traffic. Reduction in off-road foot and vehicular traffic would significantly alleviate loss of vegetative cover causing erosion and compaction.

Alternative 2: Lights Only

Vegetation would be directly impacted by approved lighting infrastructure construction and indirectly impacted by increased illumination under Alternative 2. Much of the area to be impacted has been previously disturbed (e.g., existing roads and agricultural fields) or is naturally void of vegetation. The cumulative impacts to vegetation would be very similar to Alternative 1 but to a lesser extent. The potential for indirect impacts to vegetation outside of the project area exists because of IEs trying to escape detection and apprehension near proposed infrastructure. Indirect impacts resulting from the potential shift of illegal traffic would be similar but to a lesser degree than Alternative 1. The implementation of permanent lights alone would not be as great of deterrence as the proposed 150-foot enforcement zone. Therefore, the number of IEs shifting from the project area to illegally enter the U.S. in other border areas would not be as great because they would still be able to successfully enter the U.S. within the project area. However, it is not known at this time the severity of these impacts to those areas because IE foot traffic patterns are totally at the discretion of the IEs.

Alternative 3: Lights and All-weather Roads

Alternative 3, the construction of all-weather roads and permanent lighting structures, would have both direct and indirect impacts similar to Alternative 1.

No Action

The No Action Alternative would have the least direct impacts to vegetation communities as only the ongoing CBP infrastructure and operations and projects proposed by others would be continued.

4.13.3.3 Wildlife Resources

The primary impact to wildlife resources associated with ongoing CBP infrastructure and operations is the loss or conversion of habitat. Ongoing CBP infrastructure and operations have required some form of habitat conversion. The majority of this area is comprised of disturbed habitat, semi-desert grassland, and desert scrub communities. The approved OBP infrastructure and operations are not expected to produce significant cumulative adverse impacts to wildlife.

Alternative 1: Preferred Action

Long-term indirect adverse cumulative effects to wildlife resources have occurred and would continue to occur. However, these effects, both beneficial and adverse, are difficult, if not

impossible, to quantify with the exception of conversion of habitat. Wildlife habitat would be impacted by Alternative 1; directly impacted by approved infrastructure construction and operation and indirectly impacted by increased illumination.

Reductions in and fragmentation of habitat have undoubtedly created inter- and intra-species competition for available food and shelter and, eventually, slight reductions in some wildlife populations. The effects associated with habitat fragmentation would continue. Increased patrol activities would increase the potential for some wildlife specimens to be accidentally hit and killed. Due to vast similar habitat both in the U.S. and Mexico, such losses would not be expected to result in significant impacts locally or regionally.

The increase in lighting along the border also could produce some long-term cumulative effects, although the magnitude of these effects in some areas is not presently known. Some species, such as insectivorous bats, may benefit from the concentration of insects that would be attracted to the lights. Circadian rhythms of other diurnal species and migratory bird species; however, could be disturbed enough that breeding or feeding patterns are skewed, causing synergistic physiological changes. Most lighting would be placed near urban areas, thus reducing the chances of indirect effects, if any, on wildlife populations.

Consideration was given to the potential increase of raptor electrocution or entanglement in overhead power lines from the installation of stadium-style lights. Although injuries and deaths to raptors due to collision with power lines and support (guy) wires do occur, studies have indicated these structures do not present a major problem. The relative infrequency of collisions is due to the high visual acuity of raptors and the large size of transmission line conductors (Raptor Research Foundation 1996). The stadium style lights provide artificial perch sites for raptors. Consequently, raptor predation on small mammals, birds, reptiles, and other prey species are likely to increase in the study area.

There is the potential for indirect impacts to wildlife habitat to occur outside of the project area due to IEs trying to escape detection and apprehension near the proposed infrastructure. Illegal traffic currently attempting to enter the U.S. in proximity to the proposed project area would likely shift to less secure areas of the border. During the period FY 2001 to FY 2004 (June 30 2004), 20,000 to 33,000 IEs were apprehended annually in the San Luis area and 13,000 to 23,000 IEs were apprehended annually in the River area. These two areas are the areas potentially affected by

the proposed project. It is possible that similar numbers of IEs could attempt to illegally enter the U.S. in other areas once the proposed enforcement zone is completed. However, the severity and location of the impacts are not known at this time because illegal traffic patterns are totally at the discretion of the IEs. The severity of potential impacts to wildlife habitat would depend on the location of the illegal traffic, type and condition of habitat, and time of year. Implementation of the proposed project would allow the OBP greater flexibility in patrolling and assigning agents to deter or halt illegal traffic in those areas away from the project area.

Alternative 2: Lights Only

Wildlife habitat would be directly impacted by approved infrastructure construction and operation and by increased illumination. Much of the area to be impacted is poor quality habitat that has been previously disturbed (e.g., existing roads and agricultural fields) or is naturally void of vegetation. The cumulative impacts to wildlife would be very similar to Alternative 1 but to a lesser extent.

The potential for indirect impacts to wildlife habitat outside of the project area due to IEs trying to circumvent the proposed infrastructure could occur. However, it is not known at this time the severity of these impacts to those areas because IE migration routes are totally at the discretion of the IEs.

In addition to the estimated impact of approved CBP technology based operations and infrastructure, the reasonably foreseeable CBP and other agency projects presented in Sections 4.13.1 and 4.13.2 would have effects on wildlife resources in the region.

Alternative 3: Lights and All-weather Roads

Alternative 3, the construction of all-weather roads and permanent lighting structures, would have both direct and indirect impacts similar to Alternative 1.

No Action

The No Action Alternative would have the least direct impact on fish and wildlife resources as only ongoing CBP infrastructure and operations would be continued.

4.13.3.4 Threatened/Endangered Species and Critical Habitats

No significant potential cumulative impacts on threatened and endangered species are anticipated with Alternatives 1, 2, and 3. Beneficial cumulative effects on protected species have also resulted from CBP and OBP actions through habitat protection and enhancement, as well as from expanding the knowledge of species distribution and habitat suitability (Ervin 1998; Ellingwood and Schoch 1998).

4.13.3.5 Unique and Environmentally Sensitive Areas

Potential impacts to the YDMA associated with the construction of the Area Service Highway have been mitigated through monetary compensation. Potential direct impacts to the YDMA associated with the Preferred Action and other action alternatives would be mitigated as required under the FTHL Rangewide Management Strategy. Therefore, no significant cumulative effects are associated with the Preferred Action.

There is the potential for indirect cumulative impacts to unique and sensitive areas occur outside of the project area due to IEs trying to escape detection and apprehension near the proposed infrastructure. Illegal traffic currently attempting to enter the U.S. in proximity to the proposed project area would likely shift to less secure areas of the border. During the period FY 2001 to FY 2004 (June 30 2004), 20,000 to 33,000 IEs were apprehended annually in the San Luis area and 13,000 to 23,000 IEs were apprehended annually in the River area. These two areas are the areas potentially affected by the proposed project. It is possible that these numbers of IEs could attempt to illegally enter the U.S. in other areas once the proposed enforcement zone is completed. However, the severity and location of the impacts are not known at this time because illegal traffic patterns are totally at the discretion of the IEs. Implementation of the proposed project would allow the OBP greater flexibility in patrolling and assigning agents to deter or halt illegal traffic in those areas away from the project area. Thus minimizing the potential cumulative Impact on unique and environmentally sensitive areas.

However, these alternatives would have an indirect beneficial impact on unique and sensitive resources. Reduced illegal traffic would decrease the damage currently experienced by these resources from illegal traffic.

4.13.3.6 Water Resources

Alternative 1: Preferred Action

Water withdrawals for the construction of the proposed infrastructure would be a one-time event occurring over 1-3 years. According to the ADWR, the Yuma groundwater basin has a number of waterlogged areas as a result of the application of Colorado River water on agricultural lands and inadequate drainage (ADWR 2004b). Therefore, no cumulative impacts to water resources are anticipated.

Alternative 2: Lights Only

No Cumulative impacts to water resources are anticipated because of the current waterlogged situation in the Yuma groundwater basin.

Alternative 3: Lights and All-weather Roads

Because of the current waterlogged situation in the Yuma groundwater basin, no cumulative impacts to water resources are anticipated.

No Action

Impacts to water resources from on-going and future proposed projects would have an effect on water resources.

4.13.3.7 Cultural Resources

Ongoing CBP infrastructure and operations require some form of ground disturbance, which has the potential to physically impact cultural resources. The proposed OBP infrastructure is not expected to produce significant cumulative adverse impacts to cultural resources within the project area because appropriate environmental design and mitigation measures would be implemented through both the NEPA and NHPA Section 106 processes. In addition, fences have precluded illegal foot and vehicular traffic that, in turn, disturb cultural resources within the area (USACE 2001b).

Impacts to cultural resources from off-road operations have likely adversely impacted cultural resources in the past and would likely adversely impact cultural resources in the future. Due to the random and spontaneous nature of off-road pursuits, it is impossible to predict where such off-road operations would occur. Subsequently, it is not possible to estimate the amount of cultural resources, if any, which would be impacted by such off-road activities. In addition to OBP's off-

road operations other off-road activities from private individuals and companies, state, local and Federal organizations, along with illegal foot and vehicular traffic, also have the potential to impact cultural resources in the area. These off-road activities, like the OBP's off-road operations, are often spontaneous and hard to predict. As a result, it is impossible to estimate the amount of cultural resources that may be impacted by such activities.

4.13.3.8 Air Quality

Alternative 1: Preferred Action

Alternative 1 would have a beneficial indirect cumulative impact on the air quality of the region as a result of reducing hydrocarbon and fugitive dust emissions. Permanent lights would eliminate the need for diesel-powered portable lights, thus further reducing any potential cumulative impacts. Additional beneficial impacts would result from the construction of the all-weather patrol road, which would reduce fugitive dust generated by OBP patrols. Cumulative impacts to air quality would be minimal and insignificant due to the construction activities concentrated into two-week periods.

Alternative 2: Lights Only

Hydrocarbon emissions from portable lights would be reduced under this alternative creating indirect beneficial impacts on air quality within the region; however, fugitive dust emissions would remain the same or increase. This alternative would not reduce the cumulative impact on air quality within the region, however, due to the dispersal patterns within the region any impacts attributed to this alternative would be insignificant.

Alternative 3: Lights and All-weather Roads

Both direct and indirect cumulative impacts associated with Alternative 3 would be similar to those described for the Preferred Action Alternative.

No Action

Hydrocarbon and fugitive dust emission remain *status quo*, thus having a potential cumulative effect when compared with other on-going and proposed construction projects in the region.

4.13.3.9 Socioeconomics

Ongoing CBP construction and maintenance activities have had cumulative positive impacts on socioeconomic resources within the border area and the nation through reductions in crime

associated with human smuggling and illegal drug smuggling activities. Direct cumulative impacts of approved CBP actions on socioeconomics would be expected to be beneficial but insignificant. The magnitude of the effects would depend upon the project costs (*i.e.*, local expenditures) and the economic multipliers in the region. At the same time, cumulative indirect effects to socioeconomic resources (*e.g.*, purchase of diesel fuel) would be beneficial and significant, but not quantifiable. OBP operations are valuable to society, in ways both obvious and obscure. For example, the costs of a terrorist act caused by a single undetected, un-apprehended IE could be tremendous. The implementation of the Preferred Alternative (Alternative 1) would allow BP to more efficiently and effectively detect, deter, and apprehend IEs, thereby reducing social costs associated with property damages, violent crimes, drug treatment and rehabilitation, and entitlement programs, locally and nationally.

No significant variations in potential cumulative impacts on socioeconomics are anticipated with Alternatives 1, 2, and 3. The reasonably foreseeable CBP and other agency projects presented in Sections 4.13.1 and 4.13.2 are not expected to have cumulative adverse effects on socioeconomic resources of the region.

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